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CHITECTURAL RECORD

5/1996

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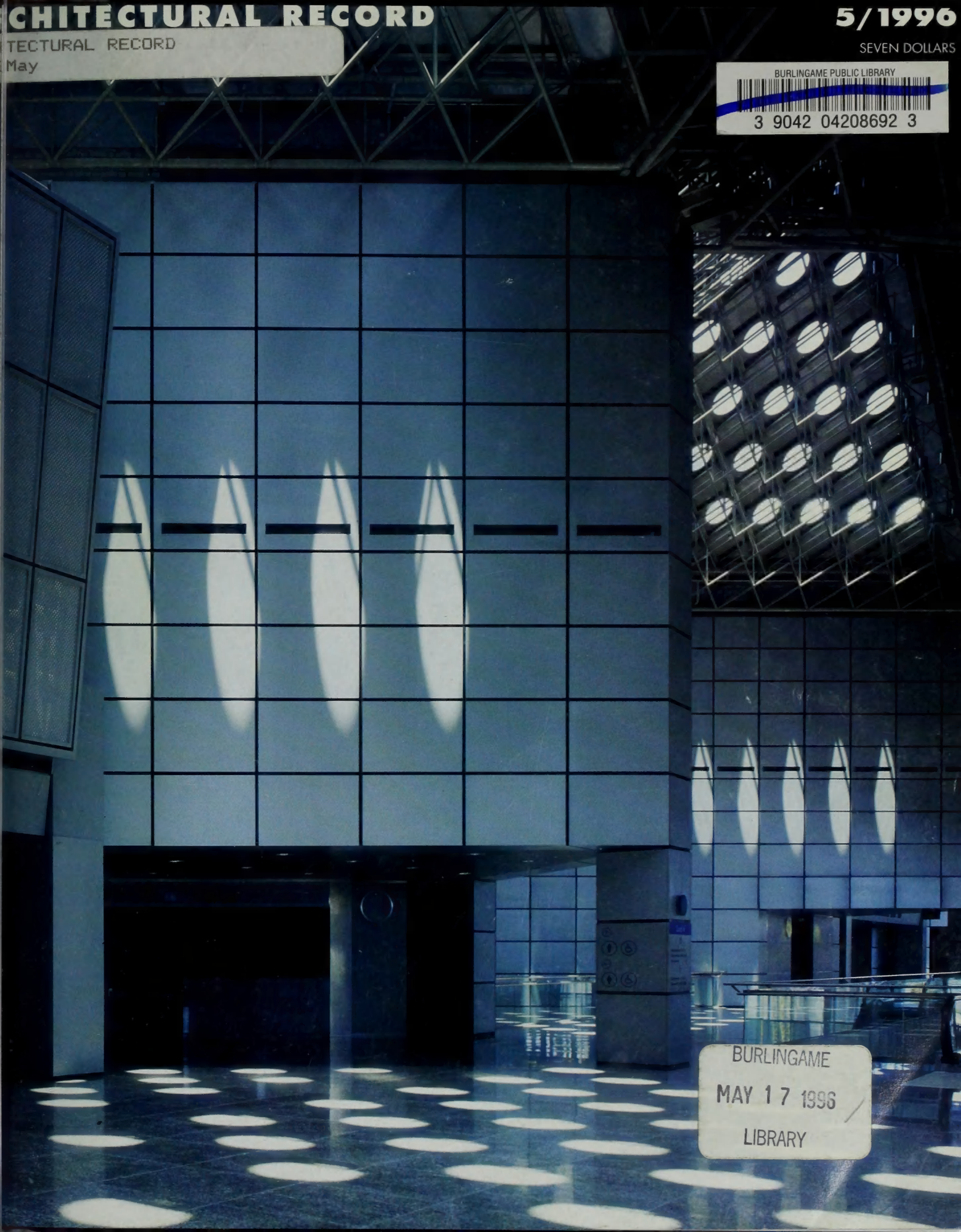

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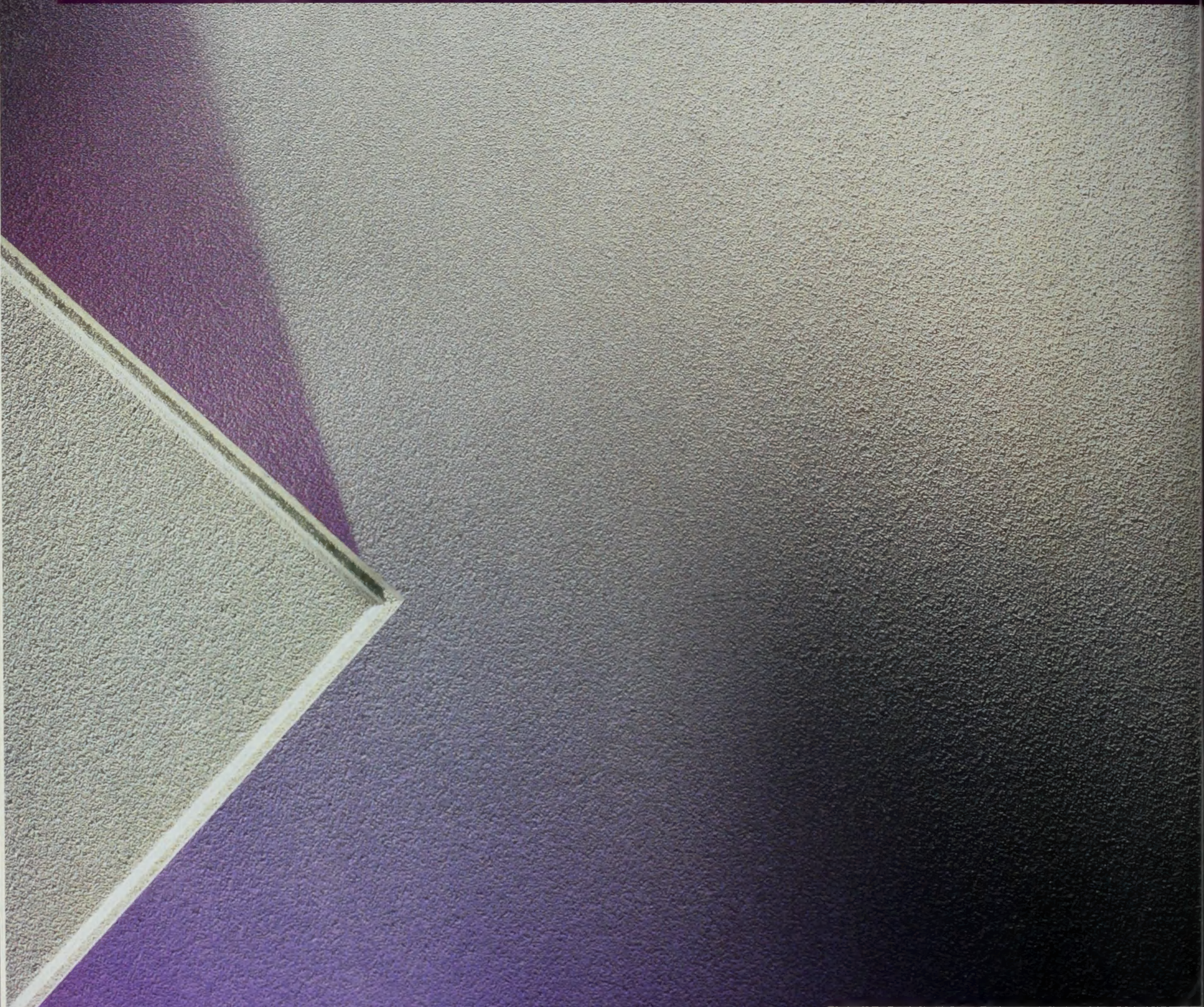

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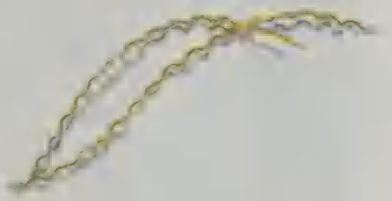

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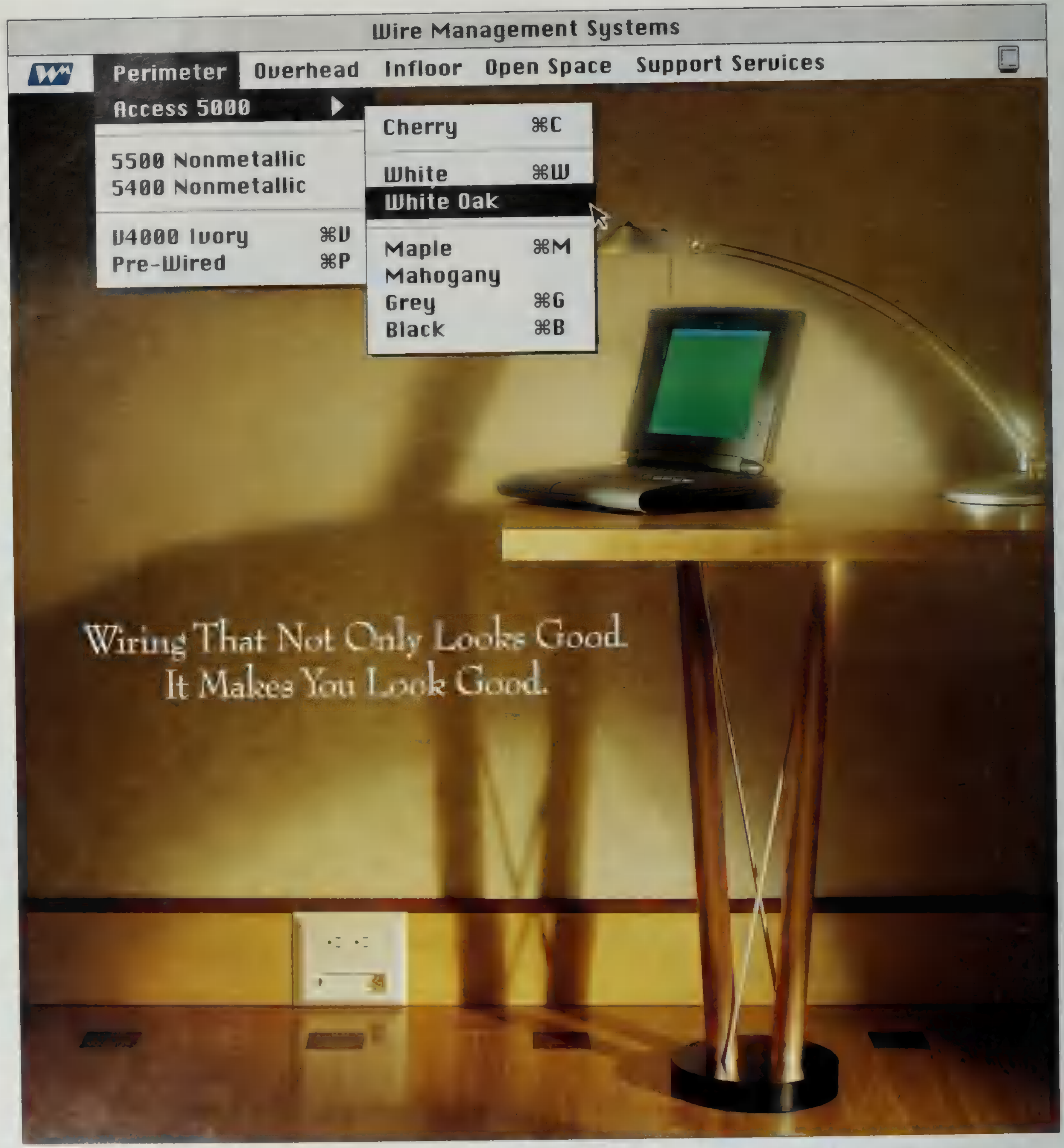

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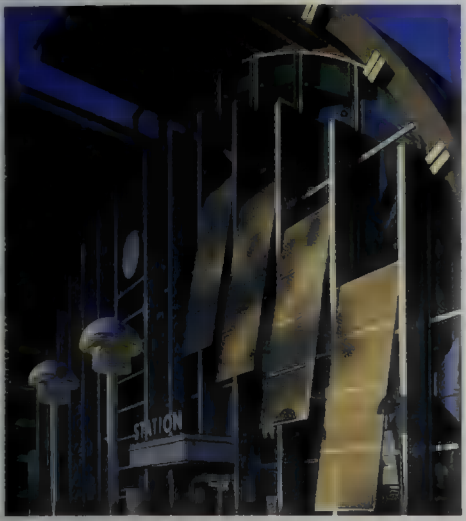

Rob Quigley builds a landmark for a San Diego beach community (page 96).

- **Defensive Glazing 34**
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Community Architecture

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◆ *Mid-year Outlook*

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Suntec City, Singapore
Tsao & McKown, Architect
DP Architects, Architect of Record
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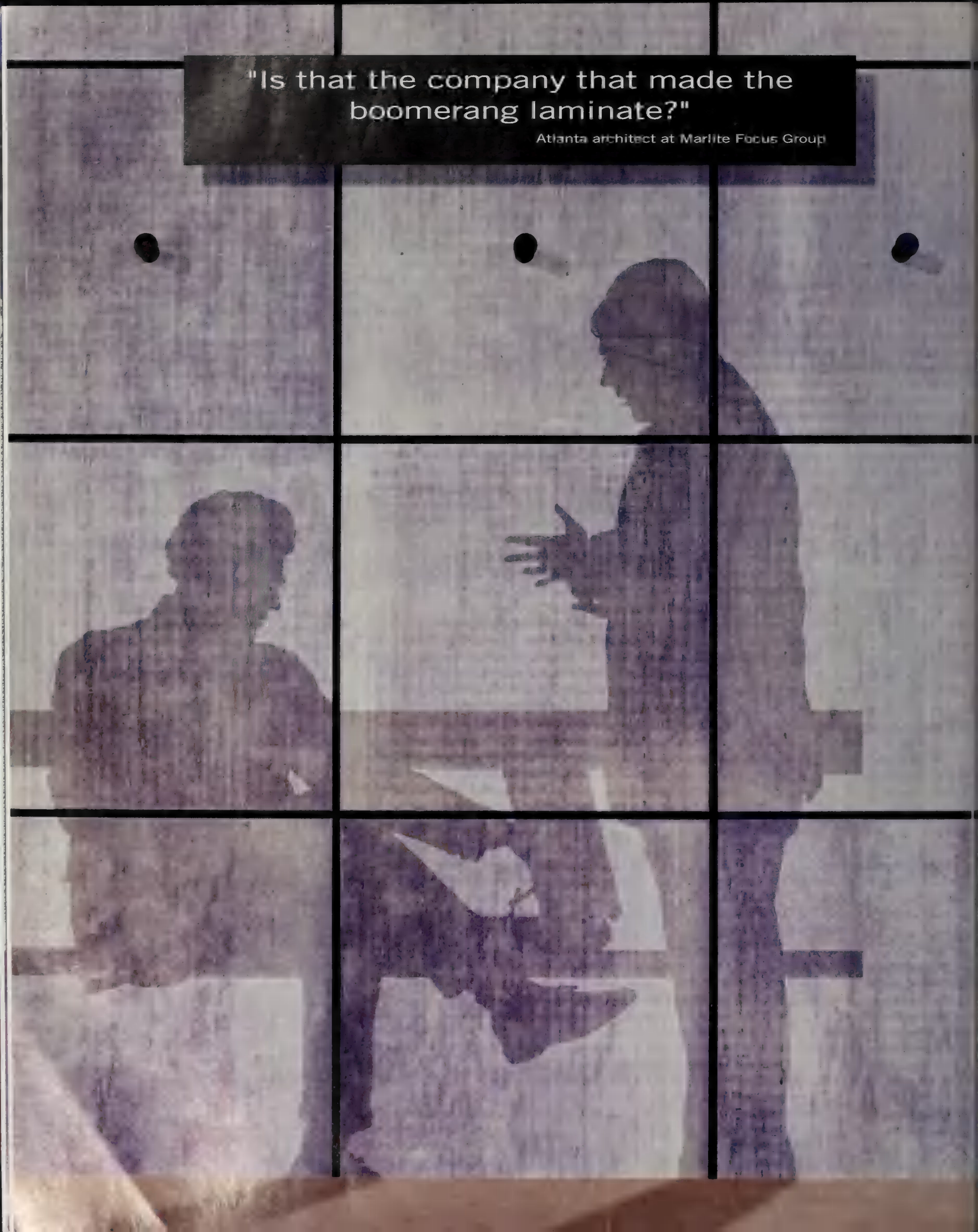

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Atlanta architect at Marlite Focus Group

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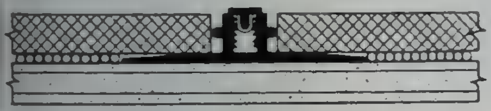

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Seaside scapes
Great editorial on background architecture [ARCHITECTURAL RECORD, February 1996, page 9], a cause I have tried to champion—with limited success—for years. Even in Seaside, where the code legislates background architecture, the cultural and educational forces which make each architect feel compelled to outdo Howard Roark, make it an uphill battle. Architects like Scott Merrill who take pride in well-detailed, elegantly proportioned simple boxes are all too rare.

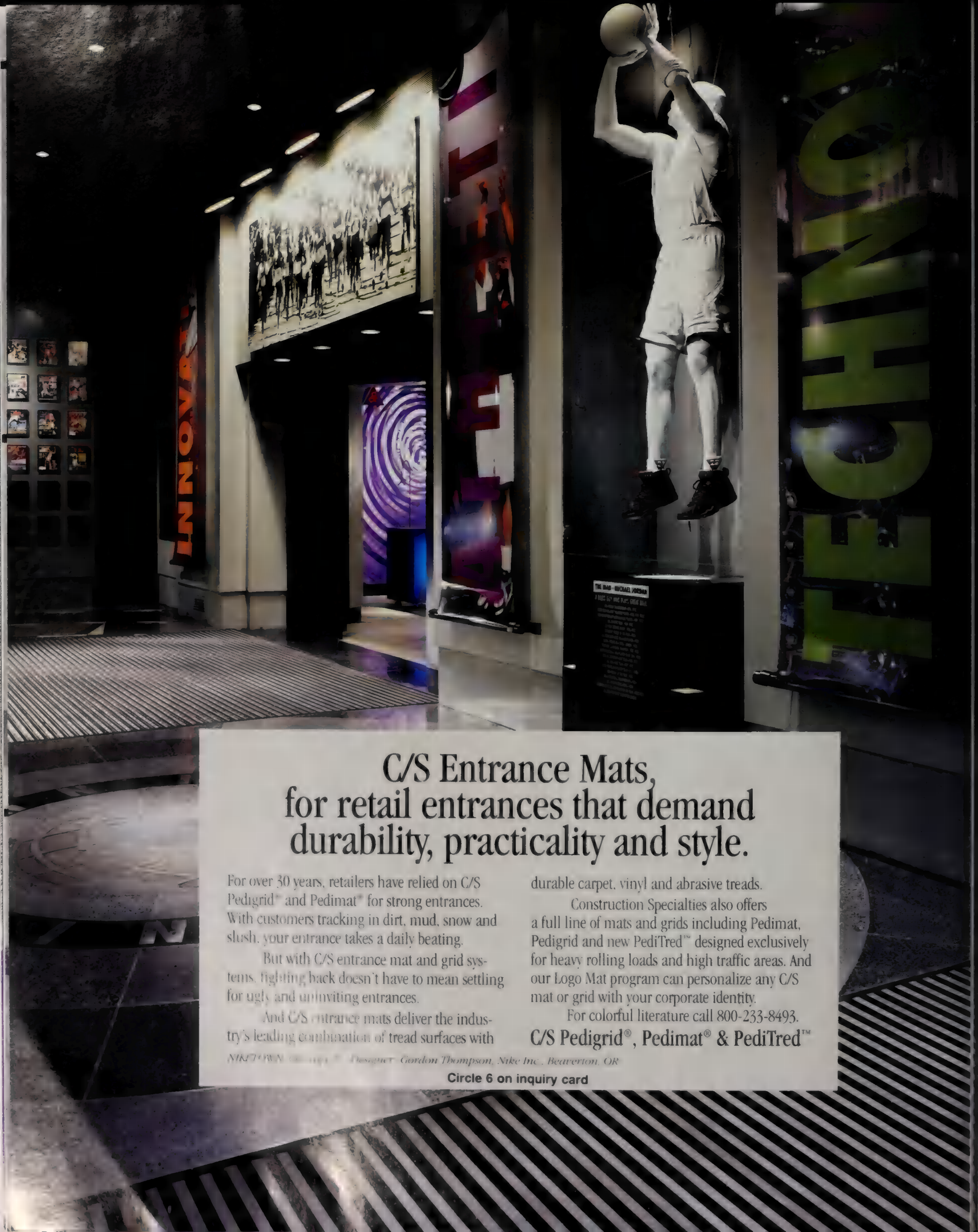
The fault lies not just with the schools and the general culture but also with the architecture press, which tends to publish monuments and "interesting" buildings for obvious reasons. It is harder to make background buildings photogenic; they are by nature not glamorous. But streetscapes or cityscapes made up of competent, simple buildings which fit well together are glorious.
Robert S. Davis
Seaside, Florida

Riverside re-do
I enjoyed the November 1995 issue on the acoustical renovation of Riverside Church [RECORD, pages 36-37]. However, I would like to provide some clarification and a correction.

The writer is incorrect in stating Wallace Clement Sabine was consulted on the Riverside Church project in 1930 (Sabine died in 1919). One of his students, Clifford Melville Swann, continued his work into the late 1920s and early 30s. Swann also served as an acoustical consultant during this period.

The article alludes to two types of Guastavino tile; one was Rumford tile (1911-1915). The second was called Akoustolith, which replaced the Rumford tile since it was easier to manufacture and had approximately two times the sound absorbency in the speech frequency range as the Rumford tile. (Readers who are interested in more information can contact the Avery Library at Columbia University, New York City, which maintains the Guastavino archives.)
Neil Thompson Shade
Acoustical Design Collaborative
Falls Church, Virginia

Through May 27
An exhibition of "Scènes d'atelier" of Christian de Portzamparc is at the Centre de Georges Pompidou Museum, Paris, showing 41 of the 1994 Pritzker Prize winner's designs.
June 6-September 3
A special exhibition at the Museum of Modern Art in New York City will celebrate the occasion of the 90th birthday of Philip Johnson, and his role as a curator and donor to the museum. Contact the Museum of Modern Art, 212/708-9400.
Through June 9
The travel sketches of Louis Kahn will be on view at Williams College, Williamstown, Mass., and include 73 drawings of sites and structures by Kahn. The exhibit moves to New York City's Jewish Museum afterward.
June 17-20
Construction Technology '96 conference and exhibition for new technologies in the building industry will be held at the Anaheim (Calif.) Convention Center. Sponsored by The Construction Information Group of The McGraw-Hill Companies (which includes RECORD, ENR, Sweet's Group, and F.W. Dodge), the event will be held in conjunction with A/E/C Systems '96. Call 800/451-1196 or fax 601/458-7171 for further information.
June 24-25
"Green Building Materials '96," Radisson Hotel, Gainesville, Fla., will explore important issues concerning the specification and manufacture of so-called "green" building materials. For information, call Dr. Charles Kibert, 904/392-7502; fax 904/392-9606.
Competitions
◆ Registration deadline to redesign Lt. Joseph Petrosino Park in lower Manhattan is May 15; submissions due Sept. 3. For details call Storefront for Art &Architecture, 212/431-5795; fax 212/431-5755.
◆ The Urban Studies and Architecture Institute International Design Competition is inviting entries to its "New York: The Lost Archipelago Governor's Island" competition. A $150 fee must accompany registration, which is due by May 31; entries by Aug. 11. Winners will split a $25,000 prize. Phone 212/727-2157; fax 212/727-2159 for details.
◆ "The End" fourth annual architectural design competition, "The Chair," is seeking entries via the Web (http://www.thechair.com) by May 31. Phone 213/296-6226 for details. ■



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ARCHITECTURAL RECORD Editorial

Ready for Inspection

There's a side to streamlining government that architects and engineers should care a lot about, simply because it affects their pocketbooks and their exposure to risk. I refer to the increasingly topical subject of inspection.

The idea is that handing off building inspection, including plan review, to the private sector will avoid costly delays forced by clogged inspectors' calendars, and allow downsized building departments to fulfill their substantial other duties to the public.

In New York City, monumental delays in processing plan reviews led the Buildings Department in 1994 to authorize architects and engineers to self-certify that their own project plans and specifications conform to applicable codes and regulations. Projects are still subject to spot inspections by departmental staff—at a rate of about one in four. (Not so long ago, most design firms had on retainer so-called "code consultants"—savvy fellows with good connections in the building department whose job it was to expedite the issuing of a building permit.)

Another stage for shifting oversight from public agency to the architect or engineer is when issuing a certificate of occupancy. In some countries, such as Australia, outsourcing by the building department is standard procedure, says Pasadena architect Robert Fowler. Architects are given the option of obtaining approvals at the various stages of a job from the city's own buildings department or, if they prefer, from a third-party private agency. Architects claim better service from the private agencies—they're available weekends, and keep more flexible hours. And the competition puts government on notice to mind its public responsibility.

Services under the Australian model could be offered by specialized A/E firms or, with proper safeguards, by a discrete division of large, multi-divisional firms. Third-party inspection by a private agency involving a certificate of occupancy in New York City would require an act of the City Council, which is said to have reservations.

As for the inspectors, they're not so sure. At least in New York one purpose of assigning inspection to the private sector is to allow inspectors to attend to the great volume of queries from the public. But it doesn't take great insight to see that in the background hovers the future of a downsized public workforce and reduced budgets.

This all means, first, that the explosion of new codes and regulations, from ADA to energy to wetlands to compliance with endangered species regulations, is placing a burden on building departments that many would as soon shed. Second, inspection offers architects an opportunity to specialize in what could be a solid source of fees. Third, outsourcing introduces risk on a big scale—to the professional and possibly to the public. Many an architect might welcome a second pair of eyes, a Phoenix architect told RECORD. Every time they certify a project, A/Es would put their licenses in jeopardy, and risk being sued for certifying non-complying elements in the plans. And what about the risk to the public of unqualified private-sector inspectors?

The answers aren't clearcut, but the issue serves to highlight a cause RECORD has long championed—that the architect's skills can be applied to services well outside traditional private design practice. And it's another opportunity to put a new face on a profession that for too long has been perceived as caring only about esthetics and downsizing its own risk. *Stephen A. Kliment*

STRAIGHT TALK ABOUT
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uilding inspectors in North
lina discovered last year that
homes constructed with EIF
ems experienced damage to
l-based sheathing and framing
use of moisture trapped behind
IFS insulation in the wall cavity.
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er, the issue of "water management"
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ɔ, What's the Problem?

definition, EIFS is a "barrier
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Improper flashing details, or imperfections in the installation of the system, especially in caulking or around windows that are not water-tight, will allow water to penetrate the system. Once this happens, there often is no place for moisture to escape, so it remains inside the system, eventually rotting the home's water-sensitive framing and exterior sheathing. This is what occurred in North Carolina, and everybody, from homeowners and builders to architects, contractors and building inspectors, is looking for answers.

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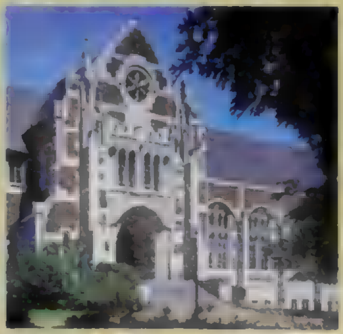

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Design

Briefs

Architects and the Feds

- The U.S. Department of Justice has closed its most recent investigation into the architectural profession's alleged violation of anti-trust laws. The investigation had been requested by the National Society of Professional Engineers (NSPE). The American Institute of Architects (AIA) has said that whether or not engineers can serve as prime professionals on a building project depends on state licensing laws.
- A partnering charter recognizing "the importance of efficient and high-quality design and construction of public buildings" was signed by the American Institute of Architects, the Associated General Contractors of America, and the U.S. General Services Administration on March 4.

Landmarks in need

- Stanford University has launched a fund-raising campaign for the restoration and seismic upgrading of Frank Lloyd Wright's Hanna House, which was severely damaged in the Loma Prieta earthquake of 1989. The university, owner of the property since 1974, hopes to raise nearly $2 million for the restoration of the house.

◆ Human nature, not mother nature, has imperiled Zeckendorf Plaza (1954-1960), I.M. Pei's award-winning, mixed-use complex in downtown Denver. The owner, HBE Corp., of St. Louis, intends to expand the site's existing hotel, transforming a vacant department store and demolishing a hyperbolic paraboloid entrance pavilion. Preservationists, architects, and others led an unsuccessful bid to gain landmark status for the complex, arguing that it is a significant part of the city's cultural heritage. The Denver Urban Renewal Authority, which is to supply a $25-million subsidy for the $135-million redevelopment project, and other city officials believe otherwise. Demolition of the paraboloid is slated for July.

◆ To help support the restoration and preservation of cultural heritage sites around the world, the World Monuments Fund of New

Continued on page 20

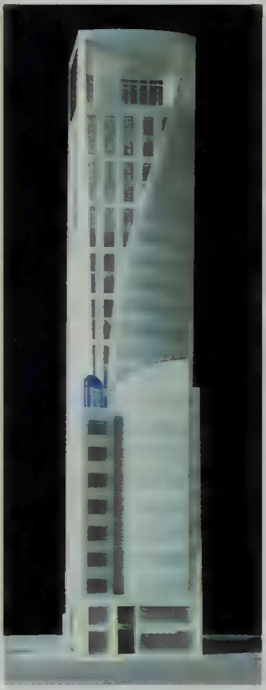
Los Angeles

New Center for Art And Architecture

April marked the official opening of the MAK Center for Art and Architecture, Los Angeles. Established as a satellite of the Museum of Applied Arts of Vienna, it will offer programs and exhibitions at Rudolf Schindler's Kings Road Studio House (1922), which is currently undergoing restoration. Funded by the museum, the Austrian government, and local contributors, the center is to act as a think tank and research institute, producing publications and electronic media, housing photo archives, and supervising the new Artist and Architect in Residence Program at the Schindler-designed Pearl M. Mackay Apartment House (1939). "Again Architecture: The Havana Project," the MAK Center's inaugural exhibition on view through July 27, includes proposals for the Cuban capital by Eric Moss and Carme Pinos, among others. *Abby Bussel*

New York City

Portzamparc Comes To New York



©*Nicolas Borel*

French architect Christian de Portzamparc has designed his first American project. Now under construction on Manhattan's 57th Street is his 23-story glass tower for the French luxury goods group, LVMH, which will include a Louis Vuitton boutique at its base. Designed with The Hillier Eggers Group of New York, the tower is to be completed in 1998. *Claire Downey*

Awards

Rafael Moneo Wins 1996 Pritzker Architecture Prize

© *Francisco Ontañón*

José Rafael Moneo has been named the 1996 Pritzker Prize Laureate. A 58-year-old Modernist based in Madrid, Moneo is the first Spaniard to receive the $100,000 prize, which will be awarded on June 12 in Los Angeles. "Each of his designs," reads the formal citation, "has a confident and timeless quality indicative of a master architect whose talent is obvious from the first concept to the last detail of the completed building." He's being honored for his work, including the Davis Museum and Cultural Center at Wellesley College [RECORD, October 1993, pages 84-91], and his role as an educator, both in Spain and the U.S., where he chaired the Harvard Graduate School of Design from 1986 to 1990. Moneo, also the recipient of the 1996 UIA Gold Medal, says the Pritzker is both an honor and a responsibility that will serve as a constant force "to do things better." ■

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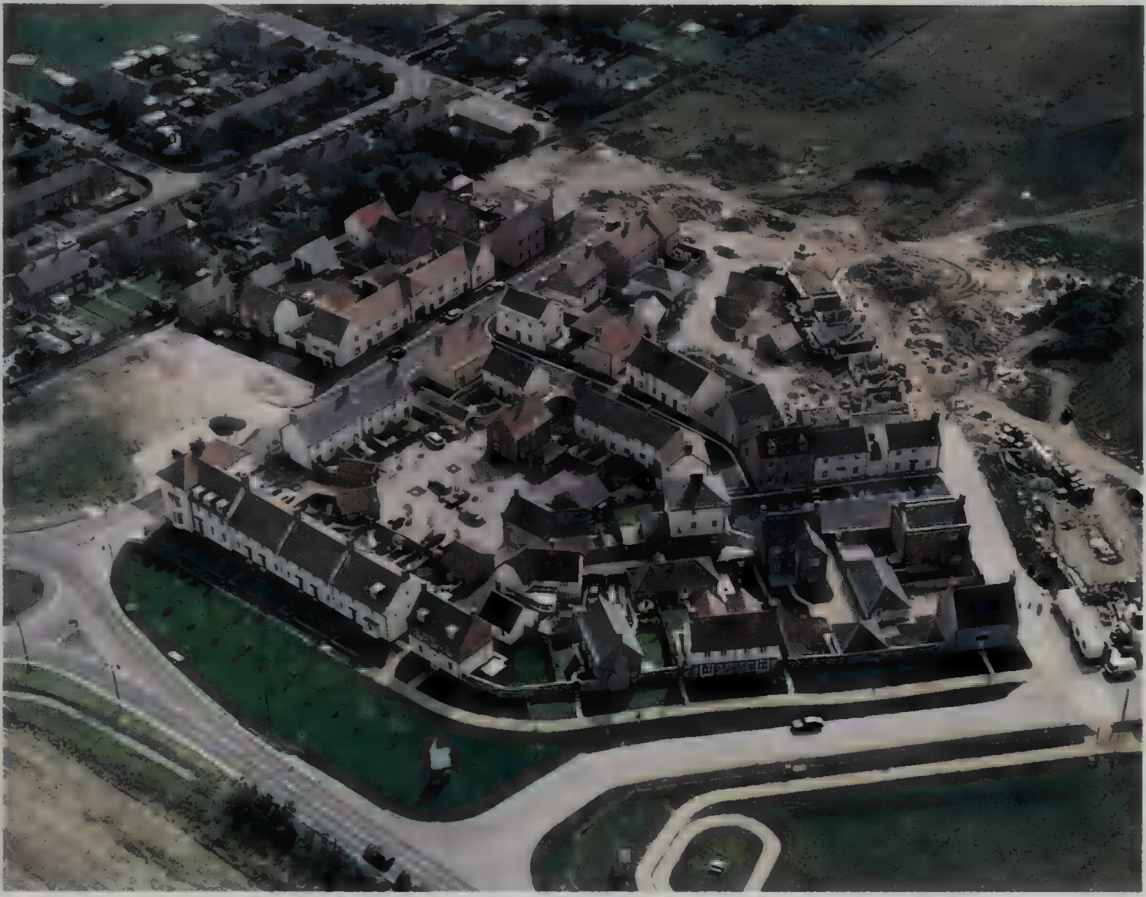
Correspondent's File: Dorchester, England

Prince Charles Builds His Dream Town

Phase One of the Prince Charles-sponsored town of Poundbury includes 250 homes in a masterplan by Leon Krier and others.



After many pronouncements on the subject, Britain's Prince Charles is now realizing his vision of an alternative to Modern architecure and urbanism on land owned by his Duchy of Cornwall on the outskirts of Dorchester, the county town of Dorset and Thomas Hardy's Casterbridge.

A fantasy town called Poundbury

Four years after sailing through its planning applications, the first quarter of Phase One—250 owned and rented homes in an assortment of vernacular styles—is complete and occupied. Ultimately, the development, called Poundbury, could increase the area of Dorchester by 50 percent, providing up to 3,000 homes on 400 acres over the next 20 years. Several local architects, who request anonymity, have been involved in modifying the original masterplan by Leon Krier. Others are scathing about the results. "A cooked-up, potted history of architecture," said one. 'Why do we have to do this? Why can't we find an acceptable style for the third millennium?" "When it's finished, it's going to be be just another estate," predicted another.

Poundbury fails in many ways. For a start, the bleak site is wrong. Dorset towns have grown historically along valleys, and not (since Neolithic times, at least) on hilltops, as does Poundbury. It is located just far enough from Dorchester to make people car-dependent. And residents will likely drive not into town, but around the bypass to shop at vast new superstores, which are also built on Duchy land. Thus little has been done to ensure the economic survival of the center. All this is curious because the Prince writes in a recent issue of his magazine, *Perspectives on Architecture*, that "we should look harder at ways to reuse our existing housing before we rush into building on greenfield sites."

Poundbury is also flawed in its urbanism. The sidewalks are too consistently wide, perhaps reflecting the need to conform to contemporary planning laws. Pocket handkerchief yards hint at the demands of today's realtor, not the evolution of a historic town. There are not (yet, anyway) those special spaces such as a broad "high street" that give English towns their character.

The houses are too tidy, too symmetrical, and too small to bear the weight of their stylistic presumptions. The overall effect is as if the Prince and Krier had been playing with a young chemist's "crystal garden." In an instant, they have grown little crystals of a variety of salts that would never be found together in nature, neither in such perfection nor in such proximity to one another.

A potpourri of historic styles

Poundbury's potpourri of styles is picturesque, but inauthentic. "There are no 'boring Victorian terraces, no 1890s workers' cottages," notes one local. "Because it is laid out for pedestrians and cars, there are no oddities of manorial waste, no bits left over." While Poundbury has an instant "history," there is no individual history in any of the houses. In real houses of the period pretended here, modern kitchens and bathrooms, for example, would have been added on at a later date, often at awkward junctures. Instead, of course, these rooms are incorporated where the modern homebuyer expects to find them.

As a consequence, floor plans are not always as corresponding elevations imply. Too many materials have been employed in an attempt to provide visual interest and to showcase "traditional" crafts. Other details also try too hard. Dates of construction (1995) are pretentiously inscribed in too lowly frontages. Street name signs are craftsy, not civic; house numbers are regimented, not individual.

Lack of vision, lack of reason

But above all, Poundbury is flawed because it has no real reason to exist. Shops may come, but jobs probably will not follow. A genuine focus is not likely to arrive either. Local sources explain that the area's churches, already struggling to fill and maintain existing buildings, turned down their chance to build in Poundbury. Instead, Krier has designed a bizarre 80-foot-high "vertical feature" to fill the physical and symbolic role of a church. "Utopias bore me. Let us have a plurality of styles," Krier has said. But Poundbury is a utopia of pluralism. Utopias are all very well. The mistake is to build them. *Hugh Aldersey-Williams*

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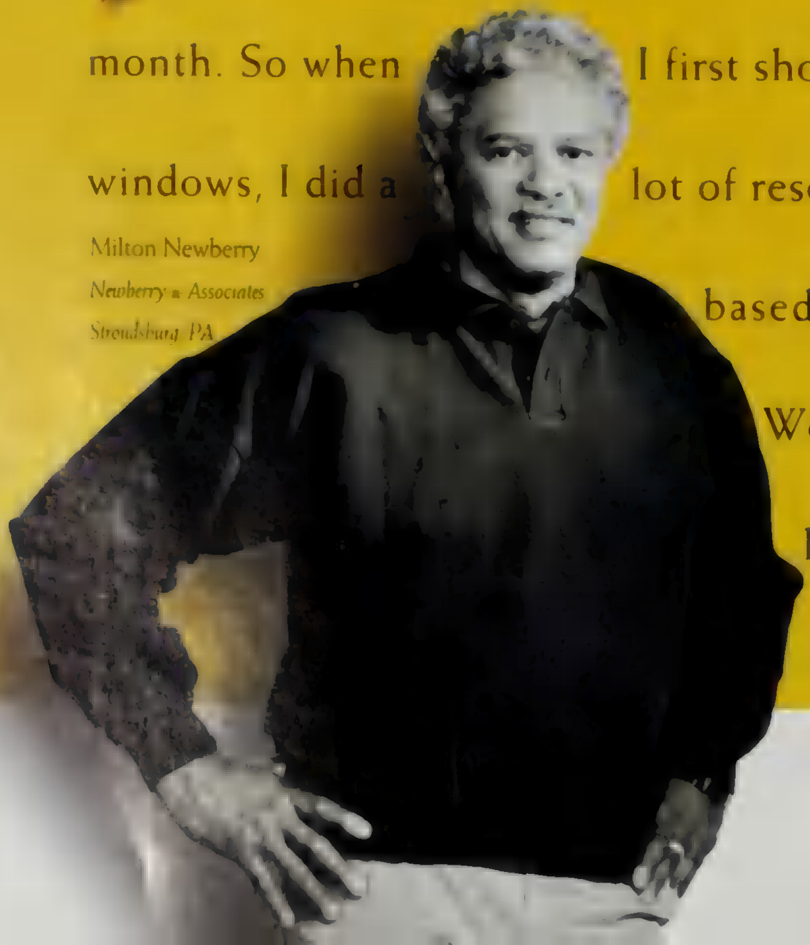

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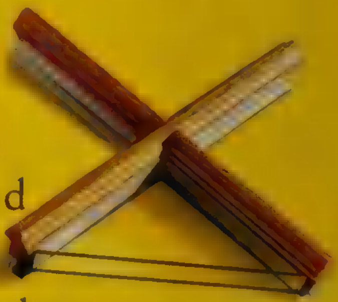

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Design

Briefs

Continued from page 13

York City has released its first annual list of "100 Most Endangered Sites." Imperiled by war, natural disaster, insensitive developments, or neglect, the sites include the White City in Tel Aviv, Israel, and the wooden churches of Chiloé Archipelago in Chile. American Express has committed $5 million to the project.

Campbell Wins Pulitzer

RECORD Contributing Editor Robert Campbell, architecture critic at *The Boston Globe* since 1973, has won a 1996 Pulitzer Prize. A shrewd, often acerbic observer, Campbell is known as a voice of common sense on an often turbulent architectural scene. He has a large public as well as professional following.

Award to Mexico City

The fourth Veronica Rudge Green Prize in Urban Design, formerly known as the Prince of Wales Prize, was awarded to Mexico City on March 13 for the restoration of both its historic center and the District of Xochimilco, a pre-Columbian Aztec agricultural landscape. The prize is given periodically by Harvard's Graduate School of Design for projects that make "a positive and substantial contribution to the public realm."

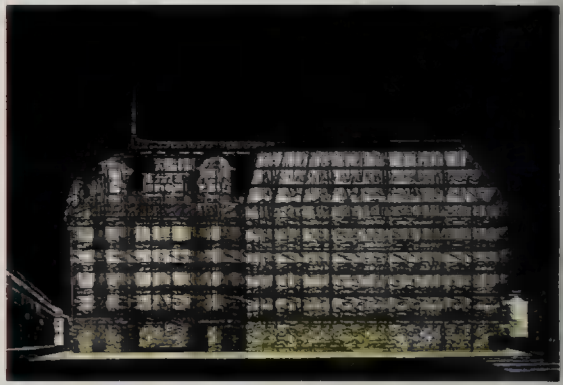
Cedric Price archives to CCA

The archives of English architect and Archigram member Cedric Price, who is best-known for his investigation of flexible structural technologies, have been acquired by the Canadian Centre for Architecture (CCA) in Montreal. The archive covers 1953 to 1981. ■

Paris

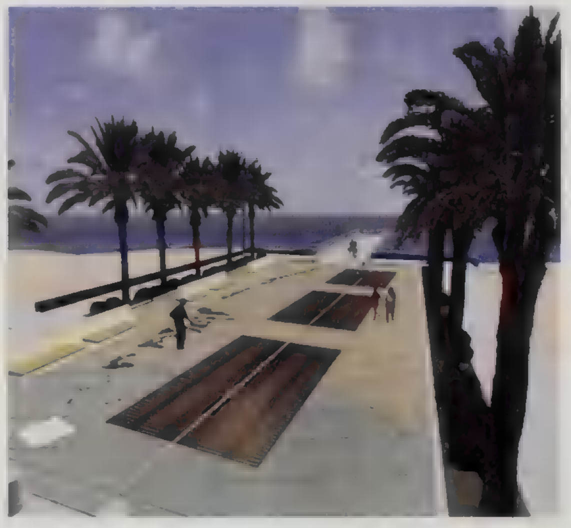
Culture Etched in Glass and Stone

Francis Soler's competition-winning design for the French Ministry of Culture in Paris unites new and existing glass and stone structures with decorative tracery etched into the building facades. The 180,000-sq-ft project, to be located on a full-block site just north of the Louvre, will house offices currently scattered throughout the city. An existing central courtyard will be opened to the street, creating a public park. Work is to begin next January. *C.D.*



Key West, Florida

AIDS Memorial to Rise in Key West



The Wheeler Group of Minneapolis has won an international competition for the design of a permanent AIDS memorial in Key West, Fla. To be built on a city-owned site at the entrance to a public pier, the winning scheme is designed as a concrete plaza with three horizontal granite sections etched with the names of people who died from complications of AIDS. Words of reflection and a map of the Florida Keys will also be incorporated into the plaza. Financed by the Miller Brewing Company and private donors, construction of the $150,000 project is expected to begin this month with completion slated for December 1, World AIDS Day. ■

Watts, Los Angeles

Inner-City Kids Use Design to Take Back a Piece Of Their Neighborhood

As government agencies reduce funding for urban improvements, many youth programs are taking matters into their own hands. One project, "Caution: Children at Work," involved the redesign of a neglected playground by school children in the Watts area of Los Angeles. Completed in February, the project was organized under the auspices of the local 4-H by two teachers, John Gust of the Compton Avenue Elementary School and Meghan McChesney, a colleague at a nearby school who recently entered the Teach for America/AmeriCorps USA program with an architecture degree from Washington University in St. Louis. McChesney guided the mostly 9-year-olds through the design process, using an apple to explain plan, section, and elevation. The students' plan—in the form of a four-leaf clover—even addresses ADA requirements. The $80,000 project, funded by the Housing Authority of the City of Los Angeles, yielded more than a playground. Not only did the students receive a letter of commendation from President Clinton, but they learned that they could help to improve their own community. *A.B.*

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Carnegie Study Sets Goals for Educating Architects; Calls for Renewal

By Robert Ivy

Seeking "common ground and purpose" for a profession "riven by self-doubt," the Carnegie Foundation for the Advancement of Teaching in Princeton, N. J., released its long-awaited report on architectural education and practice on May 6. The document, which was co-authored by the foundation's former president, the late Dr. Ernest L. Boyer, and Carnegie senior fellow Lee D. Mitgang, proposes a "broad blueprint for educational renewal."

Thirty months of research and writing by investigators resulted in both an assessment of the state of contemporary education at the nation's 103 accredited schools of architecture, as well as suggestions for revitalization. Rather than propose specific criteria for evaluation and improvement (a "cookbook" for fixing evident problems) or a core curriculum for schools, the report establishes a framework for future debate; it is not prescriptive.

"Educating architects not only for competence but also for civic engagement is surely one of the highest priorities for architecture schools in the coming years," the document declares. Entitled *Building Community: A New Future for Architecture Education and Practice*, the study represents a departure from previous efforts, says Mitgang—"an independent view by outsiders" of the relation of education to the profession.

Teaching problem-solving

Several larger themes, both opportunities and challenges, emerged from the research. First, the authors found that architectural education—with its emphasis on collaborative learning, designing within constraints, and synthesizing knowledge—offers specific, positive ways of teaching problem-solving skills to students in a variety of educational settings. Included throughout the report are examples of innovative, successful programs already underway at the nation's schools of architecture.

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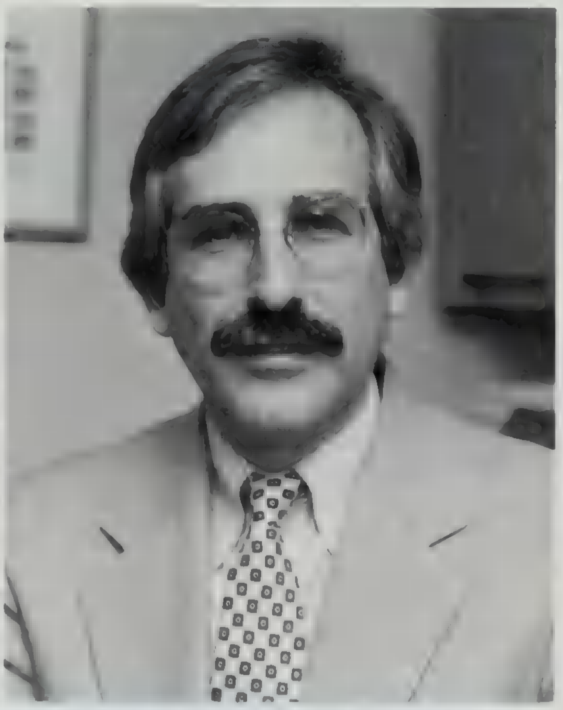
The late Dr. Ernest L. Boyer was president of the Carnegie Foundation for the Advancement of Teaching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Lee D. Mitgang, a Carnegie senior fellow and co-author of the report

More troubling, however, was an evident "disconnection" of architecture students from the larger academic setting, a social and intellectual alienation that sets the stage for the years of practice that follow. The report acknowledges a litany of grievances, including excessive student stress, inadequate opportunities for faculty scholarship, overly-demanding curricula, an often-autocratic jur system that stifles legitimate communication between student and teacher, inadequate minority representation among students and faculty, and minimal economic resources.

No dramatic call

Building Community issues no dramatic call for increased technical competence or acumen. "The report establishes seven goals of larger consequence. The schools and the profession themselves must decide, 'Are these the right goals?,' " Mitgang says.

Goal 1: "An Enriched Mission"

Chief among these goals is "an enriched mission" concerned with the "larger purpose of architecture itself" for schools of architecture. The profession's efforts should be channeled toward public-spirited ends, it argues, those higher civic concerns that architects are uniquely suited to address.

As an example, Mitgang cites the value of beauty in building. Beauty must be balanced by designs that address human need, from innovative housing solutions for low-income families to hospices for AIDS patients; creative urban solutions, including preservation of valuable urban resources; and "preserving the planet," a renewed emphasis on sustainability for the coming century.

Goal 2: "Diversity with Dignity"

A chapter entitled, "Diversity with Dignity," describes architecture's unique status within the academic setting. Aimed primarily at university administrators, the chapter argues that architectural schools contain "a mosaic of talents" that do not conform to the norms of the typical research-driven university. Applied knowledge should count. When considering faculty for tenure, for example, administrators should weigh time spent in the active practice of architecture.

Goal 3: "Standards without Standardization"

Just as universities should change the way they value architectural faculty, so the Carnegie report proposes new categories for the architectural accreditation standards. "It

Continued on page 128

Architect and author Robert Ivy is liaison with ARCHITECTURAL RECORD *under the recently signed alliance between The McGraw-Hill Companies and AIA.*

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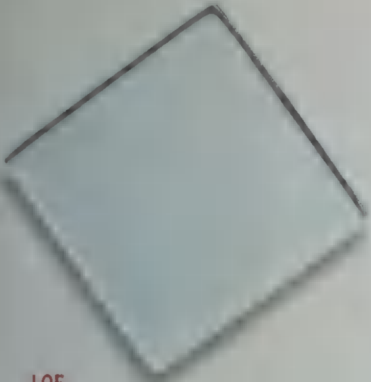

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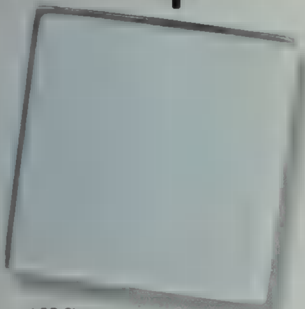

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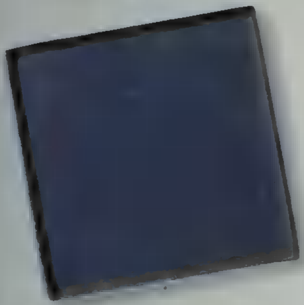

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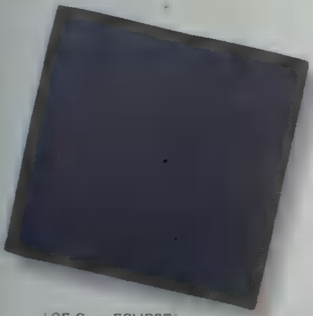

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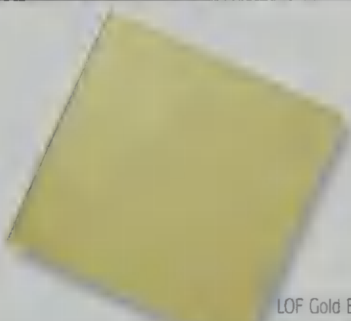

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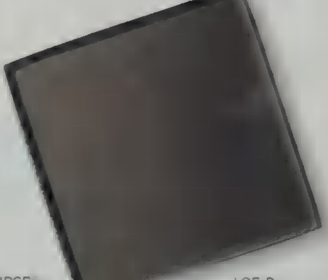

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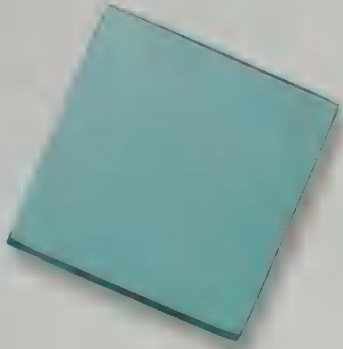

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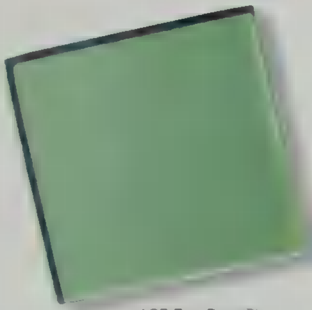

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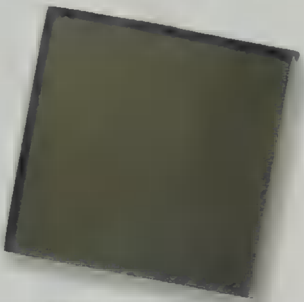

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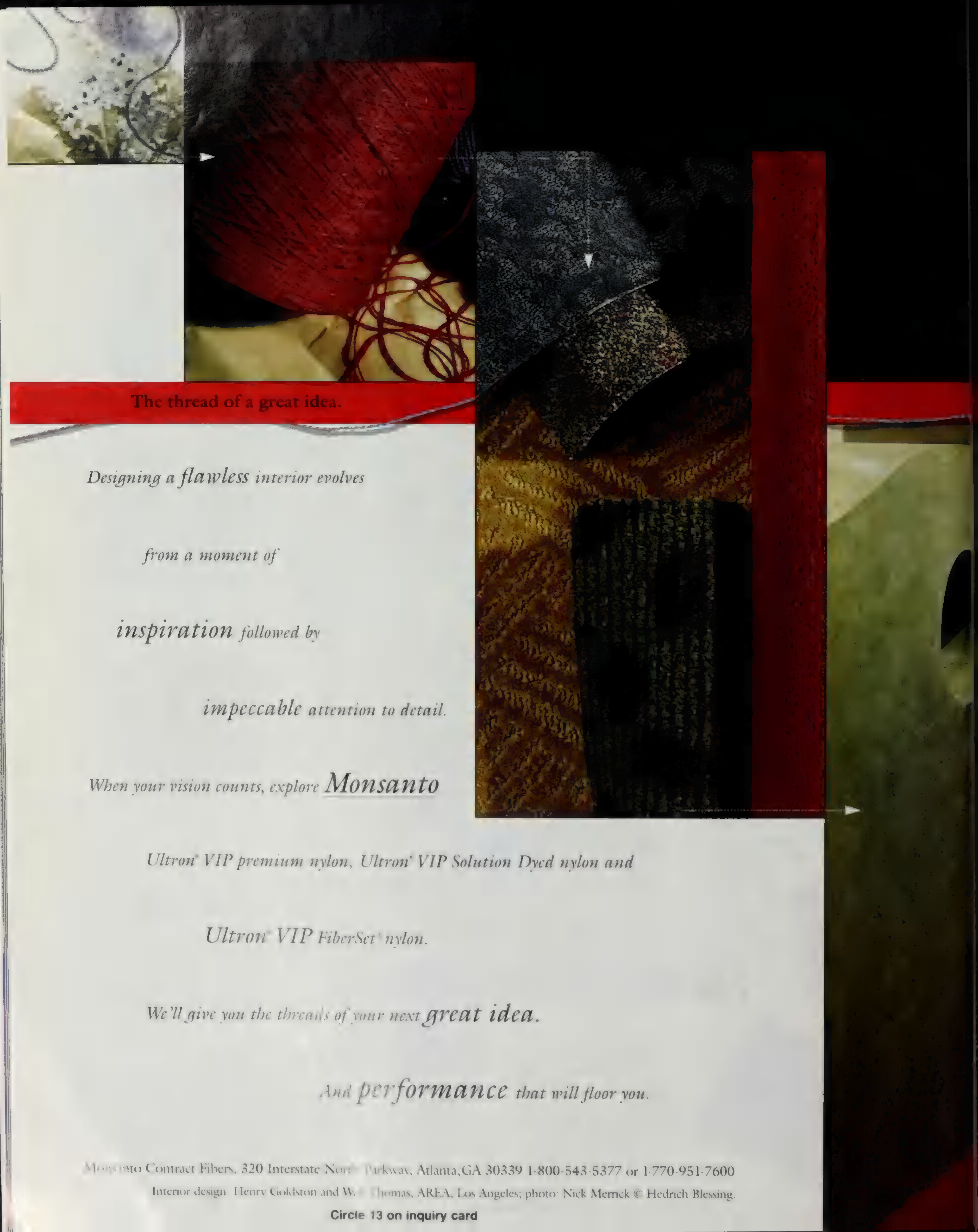

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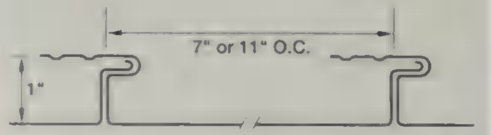

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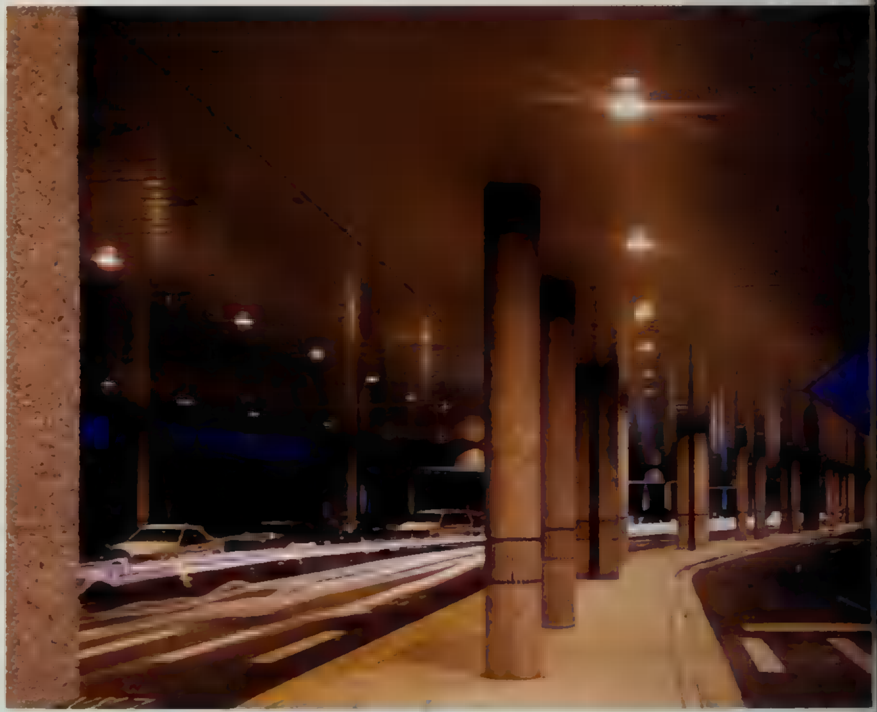

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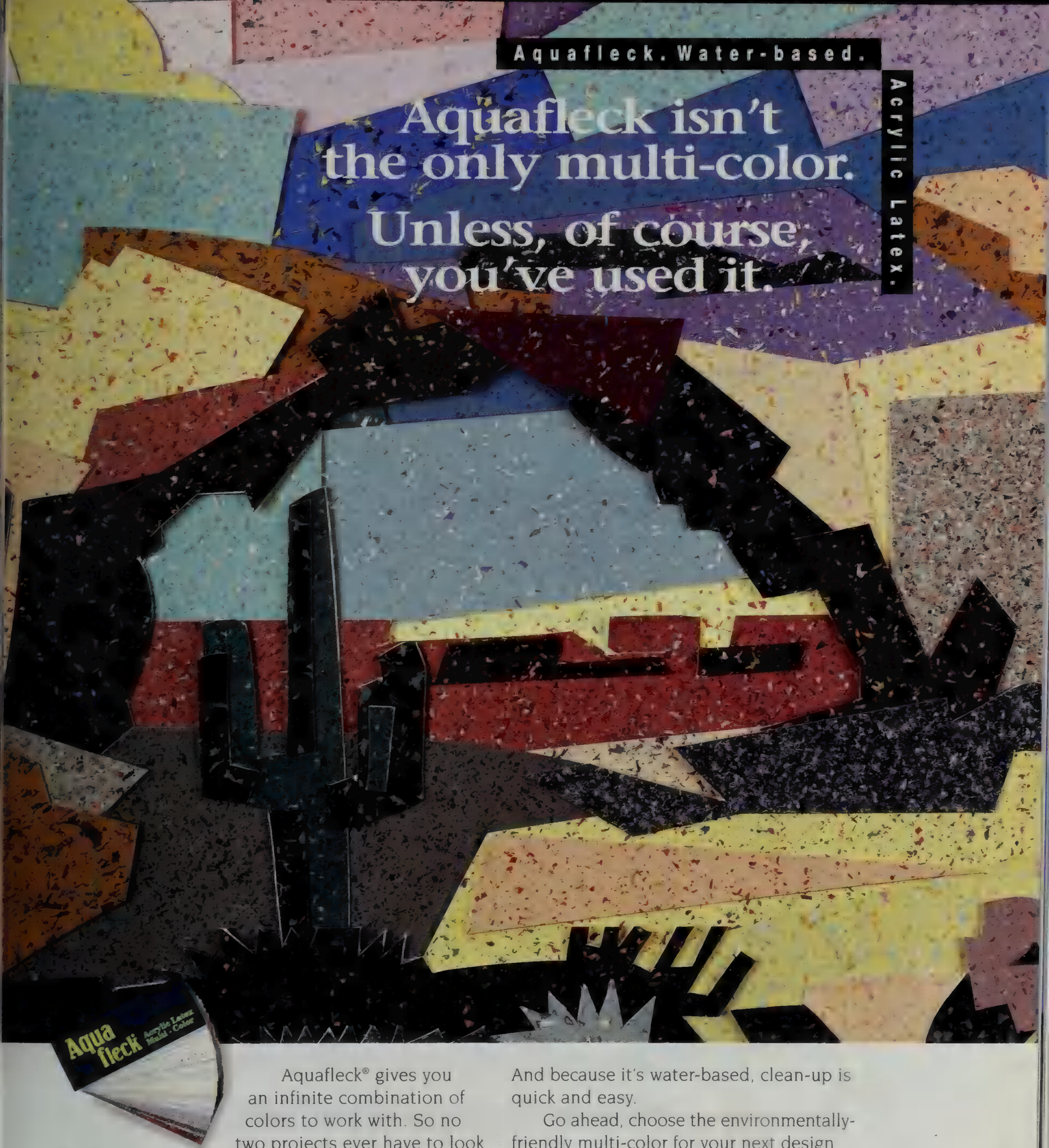
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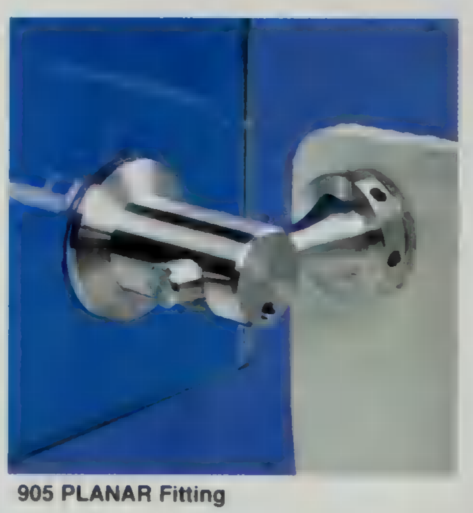

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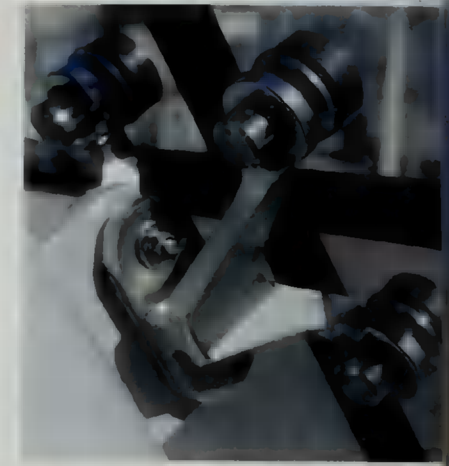


2 Point Stainless Steel Casting

Pilkington Glass, Ltd., of St. Helens, England has designated W&W Sales Ltd. of Nanuet, New York, to design, distribute and install its PLANAR glass-cladding system in North America.

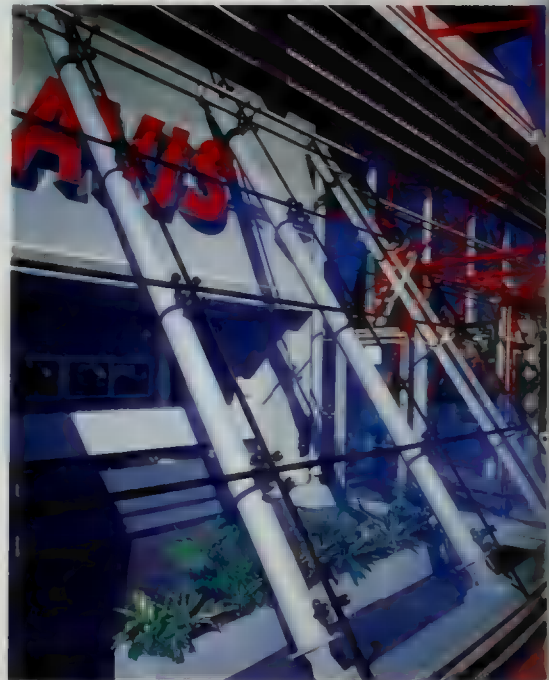
The key to the flush glass facade is the countersunk hole and bolt combination known as the PLANAR fitting. Created over ten years ago by Pilkington engineers, the PLANAR fitting transfers the various loads imposed on it back to the supporting structure while allowing for continuous glazing on any plane. This enables PLANAR glazing to sweep up walls, slopes and over roofs in one continuous surface.

Installed flush within the surface of the glass, the bolt (about the diameter of a quarter) supports the weight of the glass by direct bearing, via the bushing onto the hole drilled in the fully tempered and heat soaked glass panels.

The PLANAR system has been vigorously engineered and tested by Pilkington's engineers to ensure an exact understanding of localized stresses that build up around the holes in the glass under load. Independently audited ISO 9002 quality standards govern the production of the entire assembly.

The PLANAR system allows for rotational movement of each glass panel independent of each adjoining lite. This freedom of movement makes insulated units possible, with the outer lite carrying all of the load and the inner lite acting as a weather seal. Silicone sealant between each panel of glass provides a completed weather seal within the system.

A major design advantage of the PLANAR system is its adaptability; the support structure can be placed above or below the glass; on the interior or



ADVERTISEMENT

Structural Glazing on ANY Plane

erior of the building envelope; strong- xpressed or unobtrusive. While the h and bolt fitting itself has been standized, the spring-plate load-transfer nection can be supplied in different ns to accommodate various support ems, including: metal trusses, tenhed cables, rod rigging or glass fins.

ped or nearly flat (4 degree slope) plete roof installations can be igned to take the required dead, live seismic load. Since each light in a ANAR system is structurally indepent, damage to individual glass units — to accidental breakage — does not promise the installation. (Large walls formed extremely well in the Northge, Calif., and Kobe, Japan, earthkes.)

ere laminated glass is needed, kington uses cast-in-place resin in a l-process technique that chemically bonds the inner surfaces of the two glass lights, allowing them to move as one during thermal and seismic events. Edges of laminated-glass lights do not require special protection from moisture and the casting process lets the designer place frit patterns on an interior surface without compromising the structural adhesion of the two panes.

All glass is heat soak tested to virtually eliminate the (minimal) chance that lights will spontaneously break from nickel sulfide inclusions. Pilkington says the tempering process used to make its Armourplate glass produces an absolutely flat large glass light that reflects a true image with minimal roller-wave distortion. Because of the elegant way loads are transferred, a PLANAR wall is said to be especially useful in renovations, since the supports can be designed for minimal interference with the surrounding structure.

Circle 17 on inquiry card

W&W Sales Ltd. is the leading distributor of structural glass in the United States. They offer a full range of services including design, engineering, budgeting and in some instances complete installation of their products.

For more information refer to Sweets 08900/PIL BuyLine 4001 — Pilkington PLANAR Systems By W&W.

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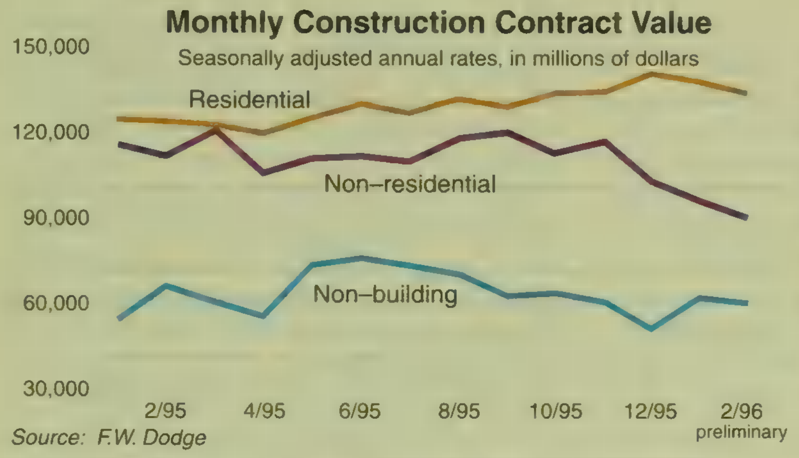
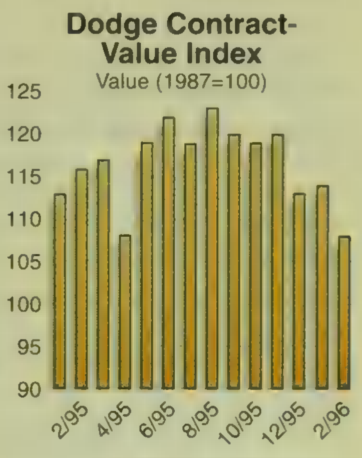
ndicators

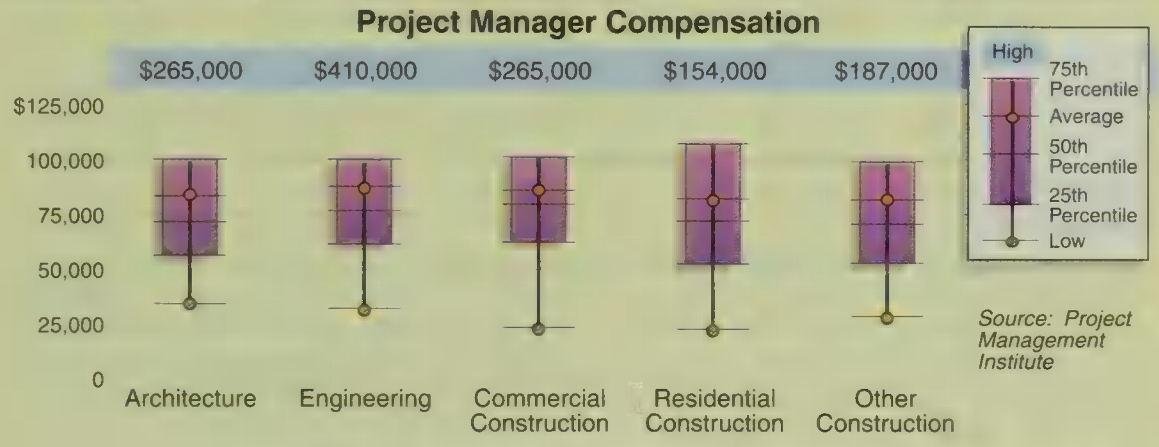
on-residential leads lower volume
ost non-residential building categories clined in February, including stores, offices, d warehouses, making the slump in this tegory now three months long. There was tle support from other building types, ading to a 5 percent decrease in total con- :uction for the month. School construction anged 20 percent, which likely will be only emporary setback. Housing slipped 3 rcent, but its current level is still strong. Iulti-family—a recent source of strength— opped 19 percent.) ■



Source: F.W. Dodge

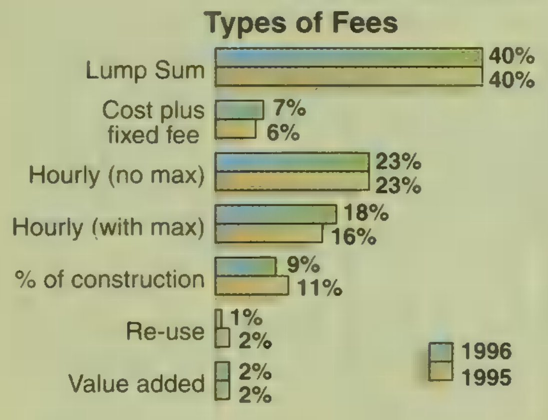


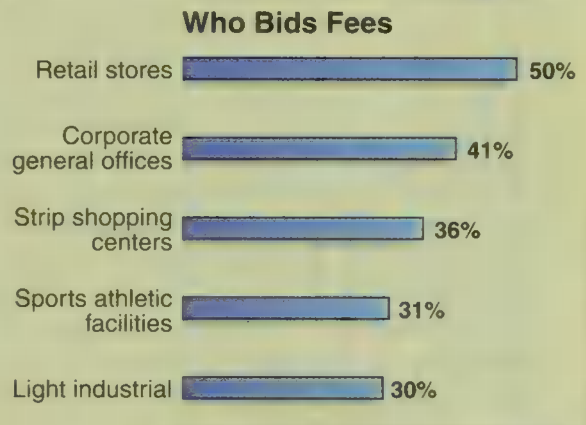
ompetitive PM compensation
laries of architect project managers are mpetitive with those offered project man- :ers in similar construction-related pacities, according to a recent survey by e Project Management Institute. The rvey looked at a wide variety of project- anagement professionals, and found those the energy, food, and economics/finance tegories were compensated best, with edian salaries near $90,000. The full survey 129 non-members) is available from PMI at 1/734-3330, 610/734-3266 (fax). ■



Source: Project Management Institute

ees improved; fee-bidding down
his year's Design Services Fee Survey owed improved fees in those building types here activity is increasing. Respondents id competing for projects primarily on ice waned slightly, suggesting to PSMJ at clients may be unhappy with results. he types of clients who most often bid fees e shown far right. "Value added" on near ght chart refers to fee incentives; "re-use" payment for designs used more than once. he survey ($195) is available from PSMJ esources, Newton, Mass. 617/965-0055. ■





Source: Practice Management Associates

Charts by Leanor Glynn

he Profession This Month

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oftware Reviews 51
ew Engineered-Wood Products 54

Short Takes

◆ **Three regions to share highest housing growth:** National Association of Homebuilders economist David Seiders expects a slippage in housing starts in 1996 of about 2 percent, but the Pacific states, the West North Central, and the Northeast regions should experience increases in starts of up to 12 percent.

◆ **Downtown office markets improve:** According to a survey by real-estate services firm Cushman & Wakefield, strong leasing activity occurred in many downtowns in spite of highly publicized corporate downsizings. Midtown Manhattan, Boston, Chicago, and San Francisco were strong; weakness was reported in Denver, downtown Manhattan, and Los Angeles.

◆ **Differing perspectives on space needs:** "Hoteling," appealing to companies because it allows more than one person to use an office, will expand to 22 percent of office space in five years, said designers in a recent survey. Facilities managers, however, saw hoteling using only 10 percent of space. ■

Resisting Natural And Human Forces

By Tom Harpole

Unless we plan to live in subterranean environments, architects must become more aware of various glazing options that provide life safety and property protection. The threats are myriad, including hurricanes and terrorism. There is no truly unbreakable glazing, and building codes generally don't call for assemblies to deter bombs, bullets, and burglars. Still, there are a number of glazing products that can protect buildings from threats ranging from small-time "smash-and-grab" thieves to bomb blasts.

The increase in random violence, crimes against property, and terrorism, as well as the enormous damages from recent hurricanes, have prompted research in protective glazing—glass that fractures but continues to safeguard the people and property behind it. Researchers have developed affordable configurations that continue to provide a barrier even after the glass has structurally failed.

The benchmark to which other products should be compared is laminated glass. Standard laminated glass consists of two or more plies of glass, bonded by PVB (polyvinyl butyral), the plastic interlayer used in car windshields. Laminated security-glass products can be made with any type of glass: annealed (plain plate glass); heat-strengthened (a hardened glass with more tensile strength); or fully tempered glass (which breaks into small rounded pieces rather than shards). Laminated glass, like monolithic (single layer) glass, may be specified for virtually any application, and can meet criteria for heat transfer, visibility, esthetics, or acoustics.

Tom Harpole, based in Avon, Montana, is a widely published writer on architectural glazing, and a member of the Society of Explosives Engineers.

Continuing Education

This article qualifies for AIA continuing education credit. For instructions, turn to page 135. AIA members should fill out the self-report form in this issue and send it in to earn two AIA Learning Units.

There are also many polymer-based lights that use polycarbonate layered with glass, polycarbonate only, and polycarbonate and acrylic, some using a PVB interlayer and/or polyethylene, polyurethane, and polyvinyl films. Various combinations of these materials have impact resistance to physical assault and a range of weapons. But all these security glazing options share one thing: their post-breakage performance. They may be fractured by various assaults or storm damage, but all can maintain building-envelope integrity after breaking.

Theft-deterrent glazing

Burglars use a variety of ways to breach glazing, from quiet cutting to noisy breakage with heavy tools. "Aggressors seem to have boundless energy and creativity," Ron Massa, of the Lorron Corporation, security consultants based in Burlington, Mass., explains. "But they know that as they work, other security systems are sensing and responding to their attempts." A reasonable risk, according to Massa, would be a one-shot attack with a brick or rock, then reaching through the breached glass and escaping.

Short of massive constructions of monolithic glass, resisting such attacks requires laminated glazings. There are laminated polycarbonates with various plastic coatings and glass layers that will certainly resist forced-entry attempts, but when cost and long-term life are considered, and guns aren't a factor, polycarbonates are often more expensive than a nominal 1/4-in. laminated glazing with PVB interlayer. Assemblies that have passed the ASTM F1233 forced-entry test are worth considering. The test procedure includes multiple blows with blunt tools including sledge hammer, shop hammer, ram, and ball-peen hammer. The sharp tools used in F1233 include a wood-splitting maul, fireman's axe, chisel, and ripping bar.

ASTM F1233 is currently used as the industry standard, according to Valerie Block, a technical consultant to the Glass Association of North America, but many manufacturers refer to HPW-TP-0100, a test widely used in the 1980s developed by H.P. White Laboratory, Street, Md. These forced-entry tests enabled architects and specifiers to compare all-glass laminates with polycarbonate laminates and glass-clad polycarbonates. ASTM tests conducted at the H.P. White laboratori on how glazings resist main-force assaults prove that laminated glazing constructions are remarkably resilient. Perhaps the most interesting findings were in the area of forced-entry or main-force attack.

An aluminum-framed window assembly glazed with laminated glass undergoing th Metro Dade missile-impact test procedure.

Massa explains, "We all think of glass as fragile, but laminated security glass is one c the toughest building materials available." Indeed, it is somewhat incongruous to watc an 8-in.-thick concrete block wall breached i less than 10 blows with a sledge hammer, while on a nearby test frame, a 1/2-in. laminated-glass light resists dozens of identical blows. H.P. White technicians conduct the forced-entry tests according to the ASTM F1233-89 Standard Test Sequence. Specimens are subjected to both blunt- and sharp-impact weapons as well as thermal stress and chemical deterioration weapons. In general, tests show that heat-strengthened laminated glass is superior to anneale or fully tempered laminated glass; several plies of thinner glass are superior to fewer plies of thicker glass; and thicker interlayer are more resistant to main-force attacks tha thinner interlayers.

ASTM attack sequences may not reflect the reality of most break-in attempts. It takes a least one minute of hard loud effort to achie a smash and grab through a 1/4-in. laminated-glass light. Since targets of opportunity are the stock-in-trade of burglars, Massa feels that most architectural applications would not require more robust assemblies.

ested glazing options are increasingly available when clients seek rotection from break-ins, wind-driven debris—even terrorist bombs.

igh-wind resistance

hen wind-borne missiles break traditional ndow glass, water pours in and damages ilding interiors and contents. Worse still, e sudden over-pressurization of the build- g interior may contribute to failure of ofing components, which can destroy the tire structure. Hurricane Andrew, at its ak, racked up damages at the rate of $3.3 illion *per second;* insured property damages Florida totaled $16 billion. Insurers are utely aware that these events may occur ywhere from Brownsville, Texas to the aine coast.

he Insurance Institute for Property Loss eduction (IIPLR) reported that the average surance payment to individual homeowners as 40 percent greater when the building velope was breached. Newly enacted lorida statutes allow insurance companies increase the deductible to 15 percent of the praised property value if windows and ors are not protected to levels prescribed Dade County/Miami area building codes. t could get to the point that whether issile-impact resistant glazing is mandated y local codes or not, it will have to be used to ualify for insurance," says Paul Beers who, a glazing consultant in south Florida, has acked the building-code changes.

istorically, shutters have been used to rotect openings from high winds. Shutters equire building occupants to deploy them, hich often doesn't happen. According to an PLR, survey, less than half of the Miami- rea commercial and residential buildings ad shutters when Andrew made landfall; of ose that had shutters, less than half were ctually used.

Andrew's aftermath, the construction dustry, insurers, and the public recognized e need to upgrade building design. Archi- ects designing hurricane-resistant windows ould look at research done by independent boratories investigating window types and nstruction. Such studies show that the normous damages inflicted by hurricane- rce winds can be lessened. Three south lorida counties—Dade, Broward, and Palm each—have adopted building-code changes at address windborne debris. To be pproved, windows or shutters must pass a test regime designed to replicate the wind-borne debris impacts and lateral loads experienced in hurricanes. The tests separate the materials into applications above or below 30 ft. For the window or shutter applications below 30 ft, large missiles are shot at specimens at 34 miles per hour, once in the center and again within six inches of a corner. If the specimen survives without a penetration, it is subjected to 9,000 pressure/suction cycles, which replicate wind turbulence during a five-hour storm. For applications that are more than 30 ft above ground, 10 two-gram missiles (meant to replicate the average weight of roof gravels) are shot at the specimen at 50 miles per hour and then the same pressure/suction cycles are applied. Windows are tested as a complete assembly of glazing and frame.

"We've reached a sort of critical mass with respect to gaining acceptance for engineering building envelopes in high winds," says Dr. Joe Minor, Professor of Civil Engineering at the University of Missouri at Rolla, one of the world's foremost glass researchers. He has studied glass under blast and ballistic attack, during seismic events and hurricanes, and he was instrumental in writing the missile-impact standard for south Florida [SSTD 12-94]. "Adopting new building codes has been a struggle, but now that more than 300 products have passed the Dade County missile-impact test, there's a general level of acceptance and availability of products that help move this change along."

Among products tested and approved by the Dade County Office of Code Compliance are more than 140 shutter panels made with plywood, aluminum, steel, and extruded polycarbonate. Hinged, folding, rolling, and accordion shutter assemblies have passed. Window types and constructions that have passed include single- and double-hung units, casements, and sliding and swinging designs, all of which also comply with egress codes. Vinu Abraham, director of the Hurricane Test Lab in Riviera Beach, Fla., one of more than a dozen labs that are currently testing products for missile impact, says that the common denominator for glazing that has passed both the large and small missile tests is a light laminated with a 0.09-in.-thick PVB interlayer.

Although the Southern Building Code Congress chose not to adopt the South Florida building code standard described above, they have directed their wind-load committee to research a tiered response, using realistic wind-speed zones and missile-impact loads and angles that reflect the actual risk incurred by most of its member jurisdictions.

As the SBCCI code-change process plays out in the fall of 1996, SSTD 12-94 will have been in place for two years. Standard practices are evolving, and professionals can be at risk if they don't keep up. Following Hurricane Andrew, Minor testified several times as an expert witness in litigation on this point. "The issue was the degree to which the architect should have known how to design against wind-borne debris. There was very little credible, published information at that time. Now there is adequate information on missile impact-resistant glazing," Minor maintains. "More than a dozen independent laboratories are testing materials that architects can easily learn about. Just be sure that the claims made by manufacturers are based on recognized standards such as SSTD 12-94."

Ballistic-resistant glazing

Armed robberies have become so common that employees of fast-food outlets and 24-hour convenience stores and gas stations are 10 times more likely to be killed at work than any other workers except for cab drivers, security guards, and police. To protect employees, who must see and be seen, many of these businesses rely on bullet-resistant systems that have been tested to the Underwriter's Laboratories (UL) rating systems for glazing. The UL ratings have two levels that test resistance to weapons less powerful than a .44 magnum. Given the proliferation of .44 magnum and more powerful weapons, however, security specialists suggest that designs for ballistic threats start at the UL 752 level 3 rating. The nominal savings for resisting only lower-caliber ballistics aren't worth the risk, they say.

Ballistic protection with polycarbonate glazing has become an accepted, well-researched standard practice. For the architect facing a glazing design that must deter ballistic threat, a consultation with a member of the American Society for Industrial Security (ASIS) may help define a suitable approach. In addition to ASTM F1233-92 and UL 752 test standards and protocols for bullet-resistant glazing, U.S. testing guidelines include U.S. Department of State standard SD-STD-01.01 and National Institute of Justice NIJ-STD-0108.01. Some of the independent laboratories that can perform tests to these standards include the U. L., of Elk Grove, Ill., H.P. White Laboratories of Street, Md., and two in California: Warnock-Hersey, of Antioch, and the Naval Civil Engineering Laboratory, Port Hueneme.

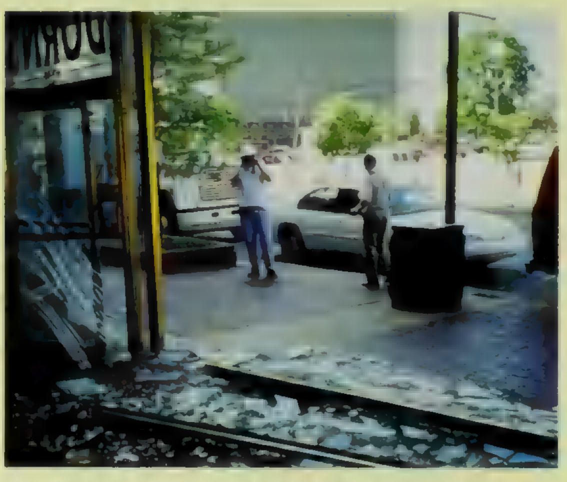
Ballistic-resistant glazing can be broken down into three categories based on the composition and attributes of the materials used:
◆ *Laminated polycarbonates*, with polyurethane interlayers, offer mar-resistance and no-spall ballistic protection. (Spall are particles that fly from the protected side of a security-glazing unit under attack.)
◆ *Glass-clad polycarbonates* combine the heat-, chemical-, and abrasion-resistance of glass with the impact-resistance of polycarbonate; various configurations can provide escalating levels of UL 752 protection.
◆ *All-glass security glazing* uses multiple layers of glass with polyvinyl butyral (PVB) interlayers. All-glass products provide affordable security for larger applications, such as storefronts and commercial buildings, and residences that may experience varying levels of ballistic attack, as well as main-force assaults such as smash-and-grab burglaries and vandalism.

As with laminated glass, polycarbonate laminates can be configured for thermal performance as well as most esthetic considerations such as tinting or reflectivity. There are incompatibilities between plastic security glazing and organic solvents, ammonia, acids, and some glazing sealants. Prolonged exposure to water can cause delamination and other damage to polycarbonates, and routine washing must be done carefully and without squeegees. There are so many permutations of these products, and so many site-specific applications, that architects are urged to consult with security or glazing experts to design defensive-glazing lights that meet the anticipated threat level as well as other code requirements of particular jobs.

Bomb resistance

A threat that poses widespread glass breakage is, of course, a deliberate bombing, which involves not only the target but nearby structures. The 1995 bombing of Oklahoma City's Murrah Federal Building, in addition to killing 169 persons, injured hundreds of people in untargeted buildings up to two miles away. Some 500 victims from 300 buildings were treated for lacerations and other soft-tissue injuries from flying glass. That horrific fact has raised awareness of the need for research to develop glazing that doesn't become part of a terrorist's weaponry.

Blast test at the Glass Research and Testing Laboratory, Texas Tech University.



© Tom Harpole photo

The Oklahoma City bomb blast showed the different behavior of annealed storefront glass and laminated glass (held in frame).

Professor H. Scott Norville, Director of the Glass Research and Testing Laboratory at Texas Tech University, Lubbock, has tested more than 300 window configurations in the Texas Tech "blast-research arena" since 1990. Norville surveyed the blast site in Oklahoma City for four days immediately after the bombing. He noted that within a 700-ft radius of the Murrah building, every conventional window configuration failed except for laminated glazing—behavior that is consistent with his test-blast observations. The author accompanied Norville in his survey, and subsequently extrapolated the effects of the Murrah bomb, a device relatively easy to conceal and deliver, to more densely developed and populated urban areas. The author measured specific downtown locales to arriv at a statistical abstract that would illustrate potential damages. The analysis assumes th all of the standard window glass within 700 f of a hypothetical ground zero would be broken by such blast overpressures and that approximately 60 percent of the glass shard would be thrown into buildings, while the re would fall on the streets, facts of glass breakage consistent with laboratory research and field observations. Population densities are based on average occupancy in downtown high rises of one person per 250 sq ft.

The statistical abstract it reveals is as plausible as it is appalling, according to Norville. For example, a Murrah building-sized bomb detonated in front of Manhattan's Radio Cit Music Hall would break and project approximately 1,278,900 sq ft of glass into and around six buildings occupied by more than 70,000 people. Roughly 511,000 sq ft of glass, weighing more than 2.8 million pounds, woul rain down onto streets and sidewalks.

Lorron's Massa notes that bomb damage is compounded by the fact that broken glass falls for hours. "Every time the wind change more shards fall, which seriously increases the risk to rescue personnel," Massa says. "Targets of symbolic significance, and the buildings near them, should be designed to mitigate the effects of blast overpressures."

Following the Murrah bombing, the Department of Justice published its "Vulnerability Assessment of Federal Buildings." The document contained as its sole specific recommendation for defensive or protective glazing: "install Mylar film on all exterior windows." That conclusion was the subject of much dispute, with objections coming from some glass researchers, manufacturers who had tested their products against blast overpressures, and security consultants such as Massa. Norman J. Glover, chairman and program manager for the City University of New York, (CUNY) John Jay Criminal Justice Center, invited these critics as well as other glass researchers, engineers, architects, and industry representatives to a conference on protective glazing. "There is a large body of controversy as to the effectiveness of Mylar-type [polyethylene terephthalate] film for this purpose," Glover stated in his invitation.

At the conference, Lynn Beason, an assistant professor at Texas A&M, College Station, and a spokesperson for the International Window Film Association (IWFA), a coalition of window-film manufacturers, stated, "The manufacturers and the people that supply this product are well aware of problems that they have had with image in the past, and they're aware that the amount of technical information they have to offer is very limited." Beason mentioned that the IWFA would like to "move away from anecdotal information whenever we're talking about window film." He noted that the laminated glass industry has generated a "massive amount of research literature since the early 1980s," while the five-year-old IWFA has yet to publish the results of similar testing. He felt that applied window film does not reduce the strength of glass below acceptable design levels, although he had not yet conducted tests.

In his concluding remarks to the CUNY conference, Norville stated: "In a rational philosophy of blast-resistant design, the designer concedes that the glass will fracture if an explosion occurs. He or she then relies on adequate frame design and the post-breakage behavior of the glazing material to protect the building, its occupants, and its contents." He feels that this requires the use of glazing-infill materials such as PVB in laminated glass.

Ed Conrath, a professional engineer with the Army Corps of Engineers' Protective Design Center in Omaha, also surveyed the scene at Oklahoma and arrived at somewhat different conclusions than Norville. "If you are working with budget constraints, but want a measure of lower-level protection for the short term, applying window film may be better than doing nothing." Conrath adds, "If I'm planning a new building I'm going to specify laminated glass every time. Once you've installed it, it's there until it breaks. With the films, the useful life is short. Life-cycle costs should be looked at, but we all have budgets to live with. Applied films can offer a limited level of protection when curtains are used and furniture is placed away from windows."

Window films may have their place, but both Norville and Massa are troubled by the fact that window films seem to be widely confused with laminated glass. Norville maintains that not all window films are manufactured from identical polymer bases, nor do the manufacturing processes impart equal levels of strength to the varying products. Manufacturers may not be able to show independent tests verifying the strength of adhesives used with films, and the effects of aging. "If films are tested to ASTM standards and procedures in the future, it would be advisable for the specifier to ensure that the specific window coating was in fact tested," Norville explains.

Match windows to structural strength

A critical consideration in retrofitting buildings to withstand explosions is planning window upgrades where protection is matched to the structure's ability to deflect dynamic loads. Steve Scoggins explains, "There is no point in armoring windows beyond the building's capacity to withstand momentary overpressures or explosions. Most conventional buildings begin to suffer structural failure in the three-to-six psi range." Scoggins is a high-rise construction engineer with Norment Industries, one of the world's largest manufacturers of bullet, blast, and attack-resistant products. "In new construction you can pour concrete that will take 10 to 60 psi and you can design window systems that will handle those loads, but there is no reason to spend money on doors and windows that can exceed the loads an existing structure can take." Scoggins recommends that a structural engineer be consulted to verify the building's inherent strength under dynamic loads whenever a retrofit is planned.

Conventional glazing frames are designed only to withstand wind and snow loads. Most of the test protocols call for edges of test specimens to have one in. of glass-edge bite (the glass dimension held by the frame), or be wet glazed with structural silicone. Security glazing absorbs some of the energy in an attack, but also transfers energy to the frame, which then passes it through the fasteners to the building. No component in this system can be overlooked. Theoretical analysis of the dynamic response of glass and frame systems are difficult, and custom frames are expensive, so to achieve the most affordable effective system, architects should consult glass makers and window manufacturers, as well as glazing consultants.

Evaluating true costs

Any analysis of post-breakage performance in glazing presumes the cost of replacement. Justifying glazing capable of remaining in place after breakage should include consideration of actual losses as well as losses associated with a building that is made uninhabitable because its envelope has been breached. "The factor that made the World Trade Center bombing disastrously expensive was the lost use of hundreds of office spaces for months afterward," Lorron's Massa recalls.

The specific requirements of a given application will narrow the field from which effective options can be compared. As a rule of thumb for uninstalled glass, laminated glass costs roughly 30 percent more than tempered glass of the same dimensions.

It is also worth noting that window-glass prices rise exponentially with the size of the light. The larger the light, the more difficult it is to manufacture flawless glazing. In general, laminated glass is less expensive than polycarbonate glazing. In larger, exposed applications such as curtain walls and storefronts, laminated glass gives a longer useful life since it doesn't exhibit the ultraviolet degradation and susceptibility to scratching that polycarbonates do. Glass-clad polycarbonate constructions avoid ultraviolet problems and scratching, but their price per sq ft tends to preclude their use in large applications intended to mitigate blast overpressures. Polycarbonate glazing, however, provides many well-researched options against ballistic attacks. ■

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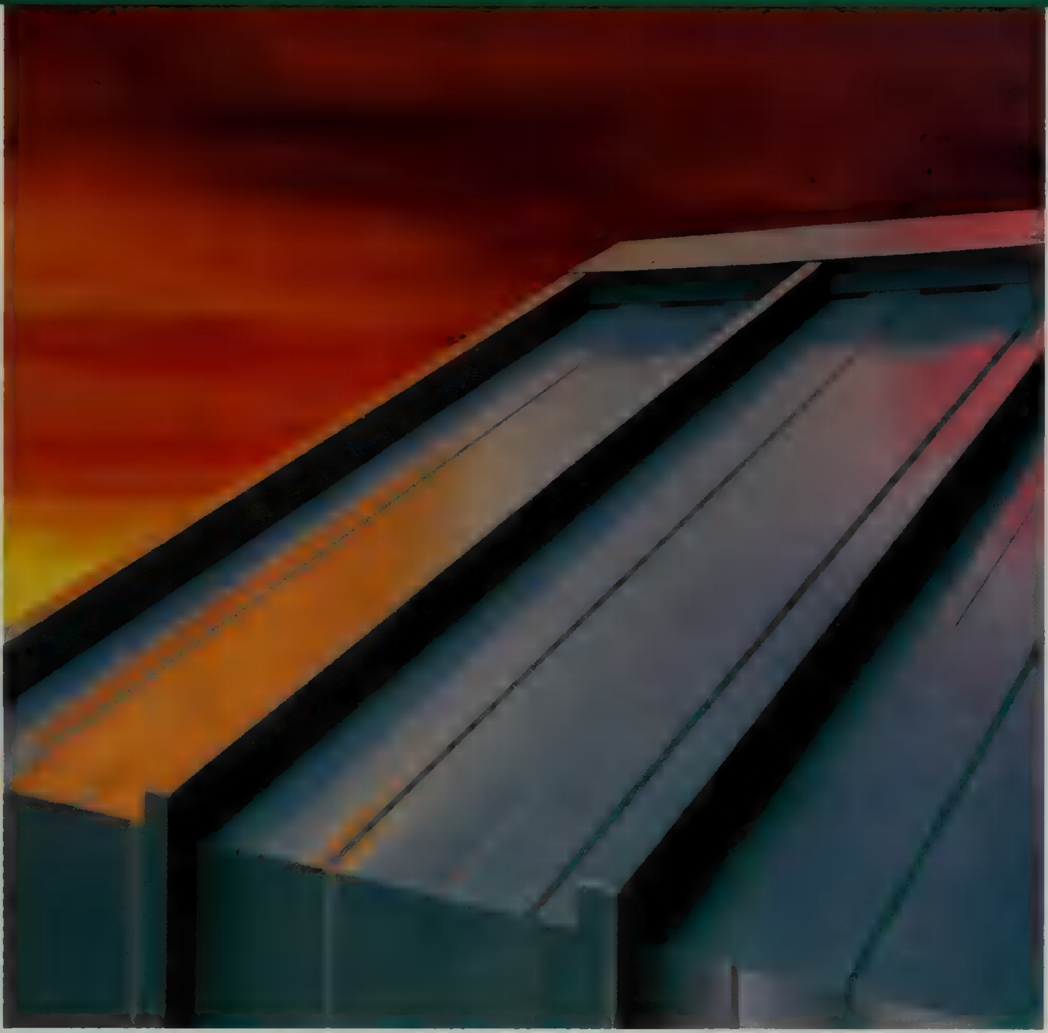

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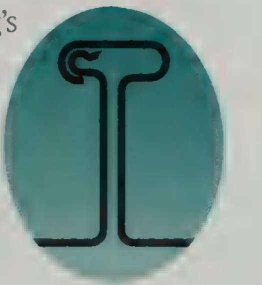

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Structure Both Concealed And Revealed

By Sheri Olson

The work of Patkau Architects doesn't draw its expressive power just from inventive form-making. The Vancouver, B.C.-based firm uses building materials—but especially wood—in an esthetic that's structurally expressive, but also intentionally (sometimes almost untidily) accommodating of each project's diverse needs, whether that be circulation or the need to draw light in.

The materials may be ordinary, but the geometries and details of the firm's work are not. It means challenging conventional construction practices, which is sometimes difficult in small private projects, often highly frustrating in public work. Three recent projects—a branch library, a public school, and a school for a native community—show how the architect coaxes its challenging designs to completion.

When construction is exposed that is usually concealed, the architect must help the builder realize the higher level of quality desired. "It's not typical for rough framers to be doing finish work," acknowledges John Patkau. Sometimes, as with the Newton Library, built by Farmer Construction, Victoria, the quality of construction is very high as a result of a good contractor. "But it can't be counted on with publicly bid projects," explains Patkau. Instead, high-effort details are limited, and the folded and creased geometries—conventionally clad—carry the day. "If we don't get a high level of construction, it won't compromise the project," Patkau says.

In at least one project, the architect and contractor had to negotiate an unconventional construction sequence to accommodate the details. Exposing underlying systems also requires close coordination with consultants. "It is more work for us because we must organize the framing very carefully," explains C.Y. Loh, the structural engineer on all three projects. His Vancouver firm has frequently collaborated with Patkau Architects over the last 15 years. To communicate the often complex geometry of the structure, the engineers and architects study projects together in model form. Viewing the framing in three dimensions also proves useful in visualizing the structural forces applied.

The architects haven't had the advantage of developing a similar long-term relationship with a contractor, due to the projects' varied locations and the requirement to bid public projects. "This type of work can be difficult to begin with, but working on public projects makes it even more difficult," says Patkau. On the other hand, he continues, "We count on the bidding process to find a contractor who really wants to take on the project."

Still, though Patkau doesn't speak of it, getting the firm's projects completed with relatively little compromise appears to require unusual tenacity and flexibility. One example: an estimate by the construction manager for the Seabird Island school (page 44), based on 75-percent-complete construction drawings, came in much higher than expected. The architects made $500,000 in deletions from the project. The native tribe which built the school itself, was able to bring each phase of construction in under what had been estimated, and the deletions were reinstated. "The estimate ended up reflecting conservatism rather than the realities of the project," explains Patkau.

Hierarchy of materials

Part of the expressiveness of traditional Pacific Northwest architecture is the use of wood for primary structural components, non-bearing partitions, and finishes. "Wood has the distinction and virtue of being a very flexible material," says Patkau. "Complex geometric configurations that may be difficult or costly when made of other materials are not as daunting in wood."

The Patkaus take cues from Pacific Northwest vernacular, but they make hierarchical distinctions in the way materials are used: the "primary" heavy-timber structure at Seabird, versus the "secondary" wrapping of cedar-shingle roofing, for example. There is even a "tertiary" role that gypsum-board cladding plays in more than one project. It's amorphous and doesn't have an obvious structural role, so it's treated pragmatically (to diffuse light, to conceal structural equipment) and as a visual counterpoint to the repetitive bays and grids of timber framing and stud walls. ■

Sheri Olson is an architect, teacher, and writer based in New York City.

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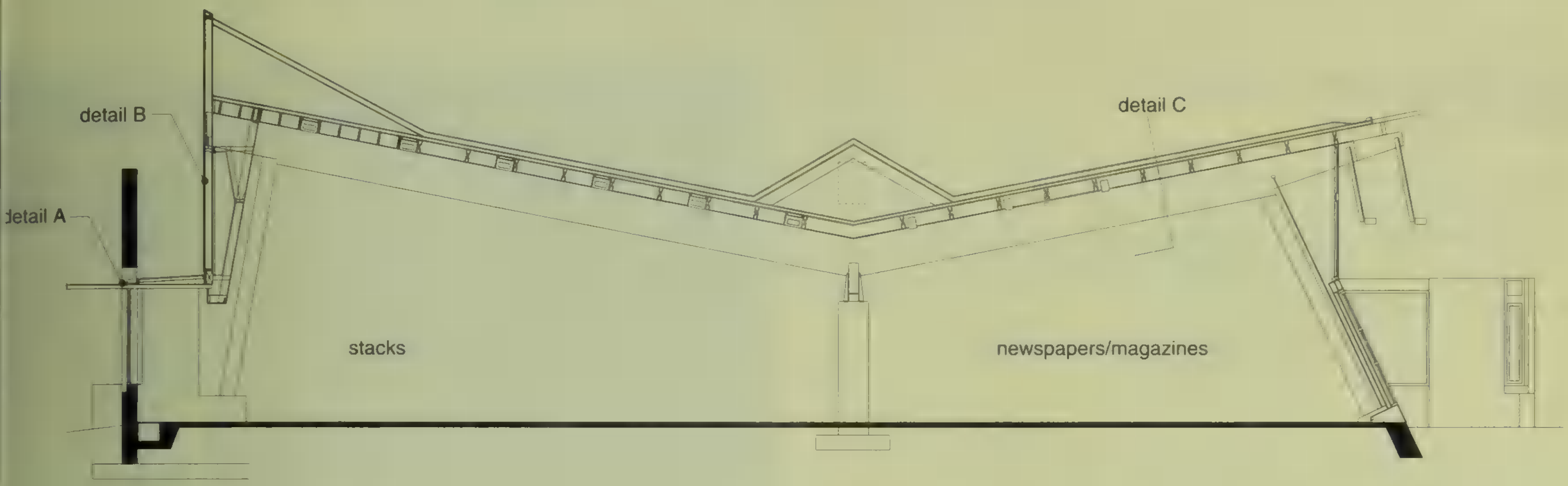
Newton Library
Surrey, B.C.

In this 16,000-sq-ft branch library, the exposed, glulam heavy-timber structure appears to emerge from the stucco-clad volumetric forms of the walls. The contrast recognizes both the limitations of materials and the budget of this project, in a Vancouver suburb [RECORD, June 1995, pages 94-95].

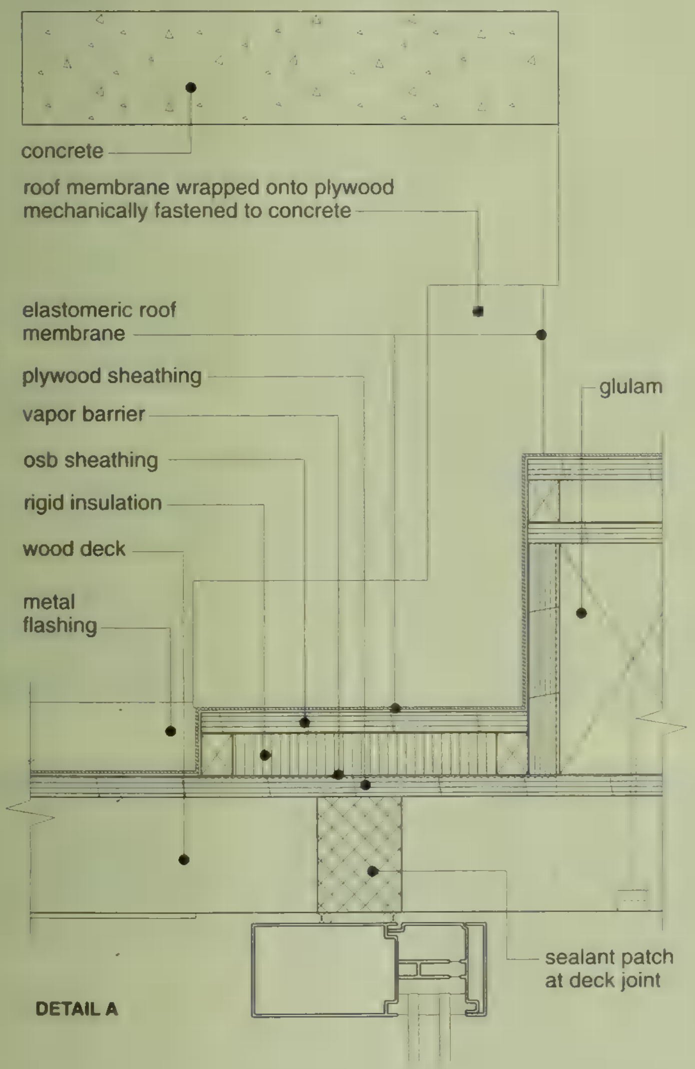
The timber framing's regular bay spacing creates an ordered sheltering armature—heaviest at the center supports, tapering to a delicate thinness at overhangs—that visually organizes the building. The non-bearing stud walls, clad in acrylic-based stucco, frame the recesses and extensions in plan.

Inside, areas of light framing clad by drywall inexpensively conceal mechanical and electrical systems and reflect outside light deeper into the space (detail, opposite far right). Esthetically, the architects see these elements as amorphous "horns" and "droopy bits" counterpointing the visual order of the wood framing. Wherever the ceiling assembly changes from clad to exposed structure, the drywall "skin" is feathered out to its own thickness, giving way to exposed wood decking (detail C). Load-bearing walls and columns are exposed, poured-in-place concrete. Where the roof assembly appears to float through an opening in one concrete wall (detail A), the wood deck is hung from a glulam concealed behind the concrete wall. Membrane roofing rolls up the vertical wall surface to become flashing. *S.O.*

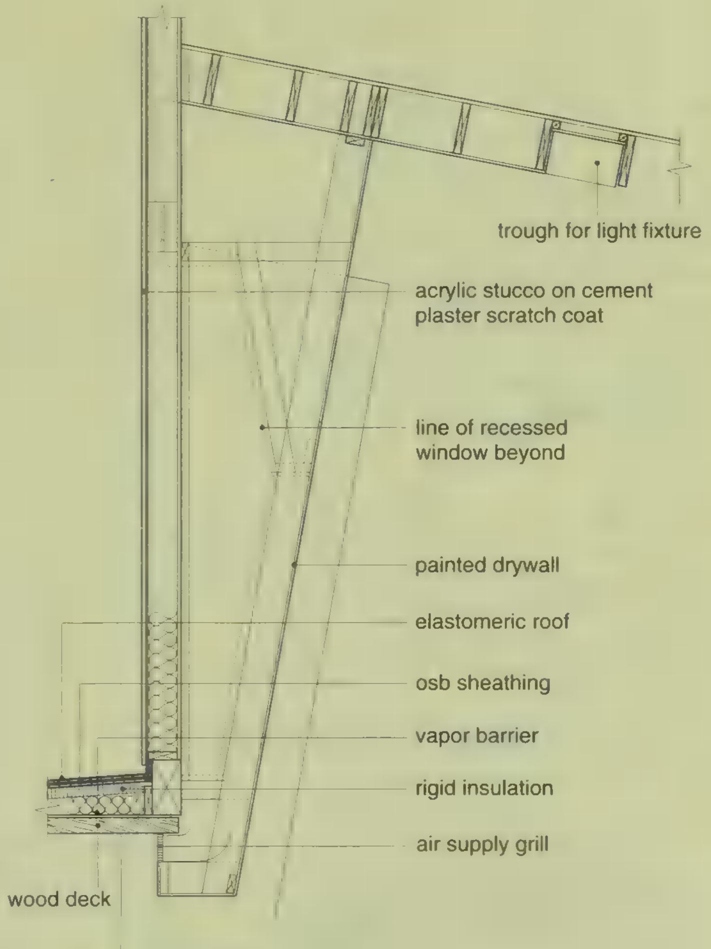
ood's versatility helps one architect realize projects with both a rich cabulary of materials and unusual geometric complexity.



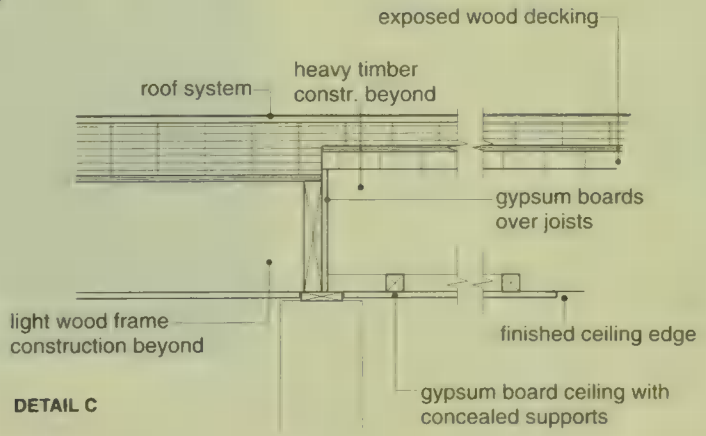
SECTION LOOKING WEST


concrete
roof membrane wrapped onto plywood mechanically fastened to concrete
elastomeric roof membrane
plywood sheathing
vapor barrier
osb sheathing
rigid insulation
wood deck
metal flashing
glulam
sealant patch at deck joint

DETAIL A



DETAIL B


exposed wood decking
roof system
heavy timber constr. beyond
gypsum boards over joists
light wood frame construction beyond
finished ceiling edge
gypsum board ceiling with concealed supports

DETAIL C

Strawberry Vale School Victoria, B.C.

Patkau Architects saw in this school, which will open later this year, a chance to impart to its 400 students some understanding of how buildings are made. The design of the 34,500-sq-ft project expresses its conventional construction methods. What's unique is the selective way the building technology is displayed.

"Materials are carefully chosen to achieve a clearly articulated objective," according to Patkau. There is an internal steel frame, which is exposed. It's like a giant central truss along what the architect calls "the meandering spine," an irregularly shaped central corridor (top right). The local contractor, JCR Construction, attached wood-framed stud walls to the framework, much of it unclad (bottom right). Like the Newton Library, gypsum board is used to conceal mechanical systems and to diffuse natural light where needed. It's also intended to draw a visual distinction between exposed supporting construction, and clad "non-supporting" construction.

To get the thin, tapered roof edge desired, the Patkaus detailed a heavy, ribbed, metal-roof profile that acknowledges the thickness required for the insulation over occupied space (detail D). At the uninsulated exterior overhangs, the thickness for the insulation is dropped and the roof cladding changes to flat-seamed sheet metal. (Dry-pipe sprinklers in the exterior soffits meet code requirements for combustible construction.)

Natural lighting was important to the project, so the placement of skylights, interior finishes, and even blackboards was computer-modeled by Criterion Inc., Portland, to criteria developed by mechanical and electrical consultants D.W. Thomson, Vancouver. At the upper level of the spine, for example, where a clerestory window might have been used, a skylight was designed to drive light deeper into the space (details A and C). *S.O.*

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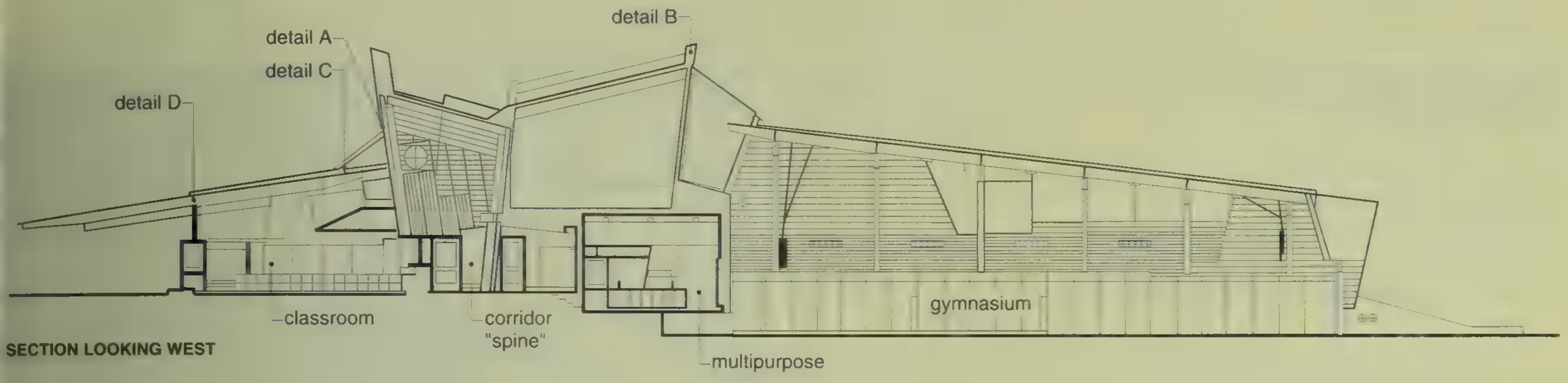
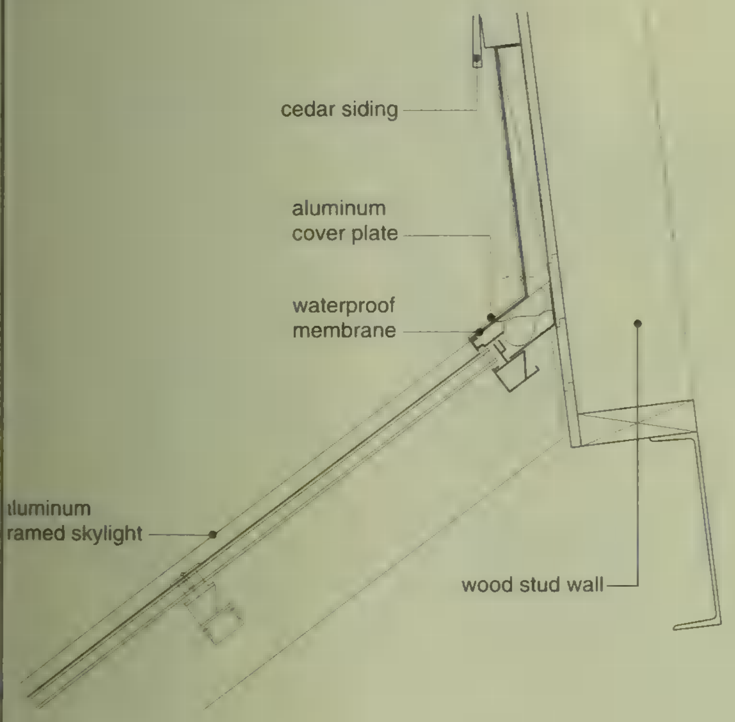
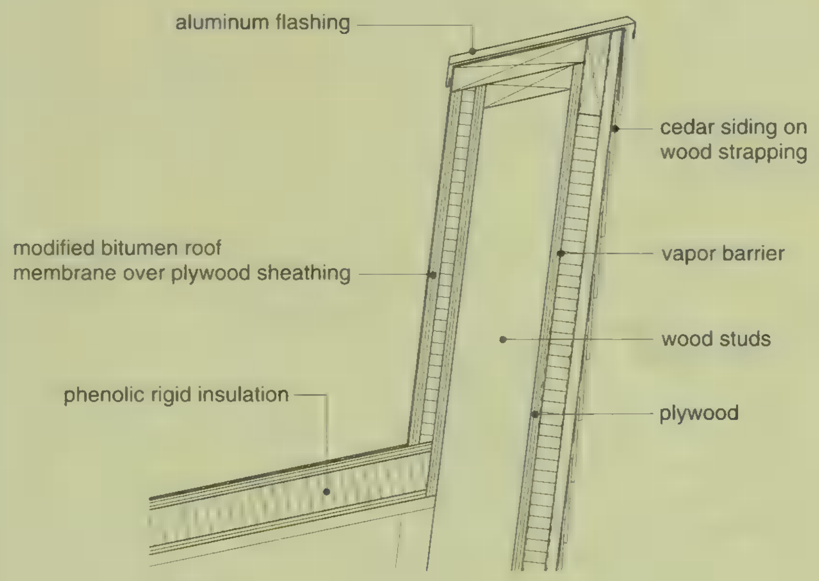


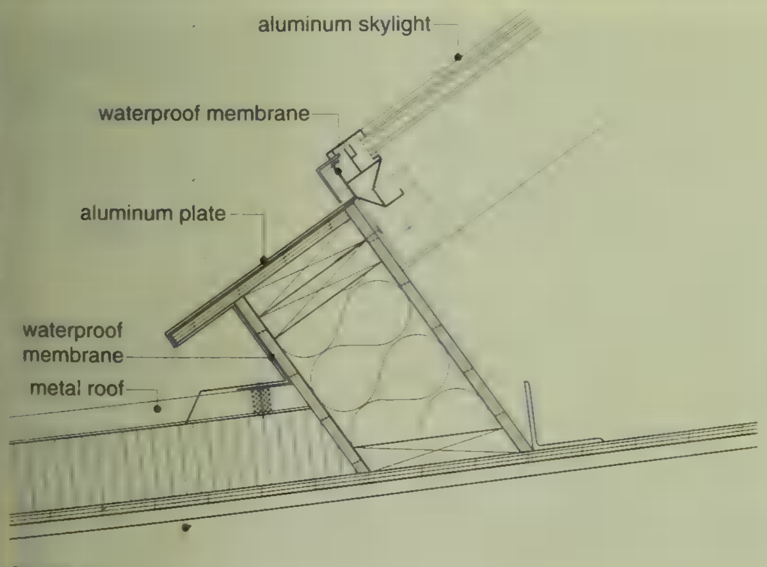
SECTION LOOKING WEST



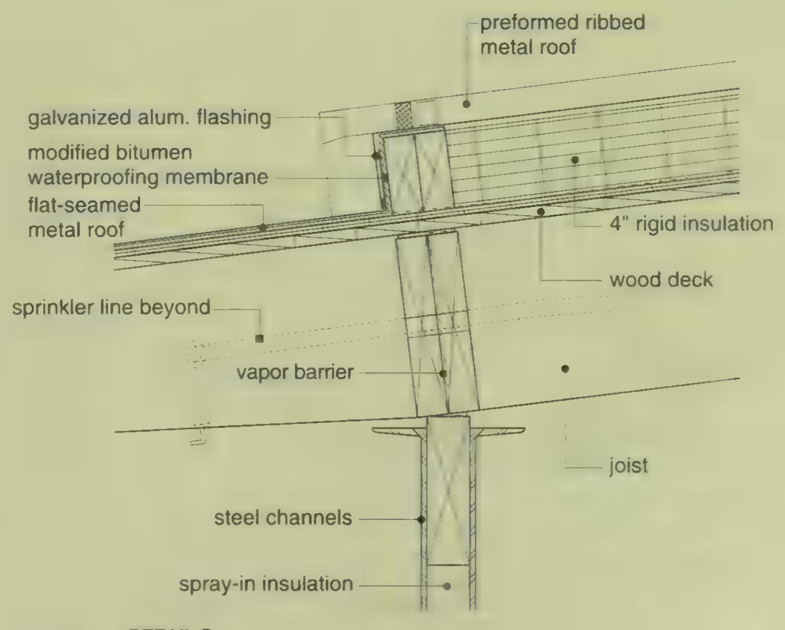
DETAIL A


aluminum flashing
cedar siding on wood strapping
modified bitumen roof membrane over plywood sheathing
vapor barrier
wood studs
phenolic rigid insulation
plywood

DETAIL B



DETAIL C



DETAIL D

Seabird Island School
Agassiz, B.C.

As part of a program developed by the Canadian government's Indian and Northern Affairs department to support native communities, the Salish tribe built the Seabird Island School, completed in 1991.

The irregular shape of the school in part evokes native culture (it's been compared to a fish or bird) and in part responds to conditions of the site. On the north side, the folded roof wraps the framing and finishes low to the ground, blocking extreme winter winds. On the south, the roof visually peels back (top right) exposing the struts, beams, and trellises that animate the side bounding the existing community. The spar pole detail (opposite middle right) is in the tradition of totems and porches of natives of the Pacific Northwest.

With the supervision of construction manager Newhaven Projects, the tribe did the concrete work, structural framing, interior partitions, and installed the vapor barriers and insulation. "The band probably didn't realize how difficult the project was," says Patkau, "but fortunately they were up to the challenge." The structural system for the 23,500-sq-ft school uses engineered heavy timbers of laminated-veneer lumber (LVL), which have higher structural capacity than similar glued-laminated members.

To help visualize some of the more complex three-dimensional conditions of the building, the architects made a detailed framing model to supplement the construction documents (bottom right). After construction was completed, the architects found out that there were occasions when information was scaled directly from the model. The tribe experienced few difficulties with the project, according to Patkau, and he is pleased with the workmanship.

The roof assembly locates a combined air/vapor barrier at the dewpoint of the assembly, with insulation placed on top of the framing members. Where insulated meets uninsulated roof construction, the architect added a step in the roof, emphasizing the taper of the eve (bottom detail). *S.O.*

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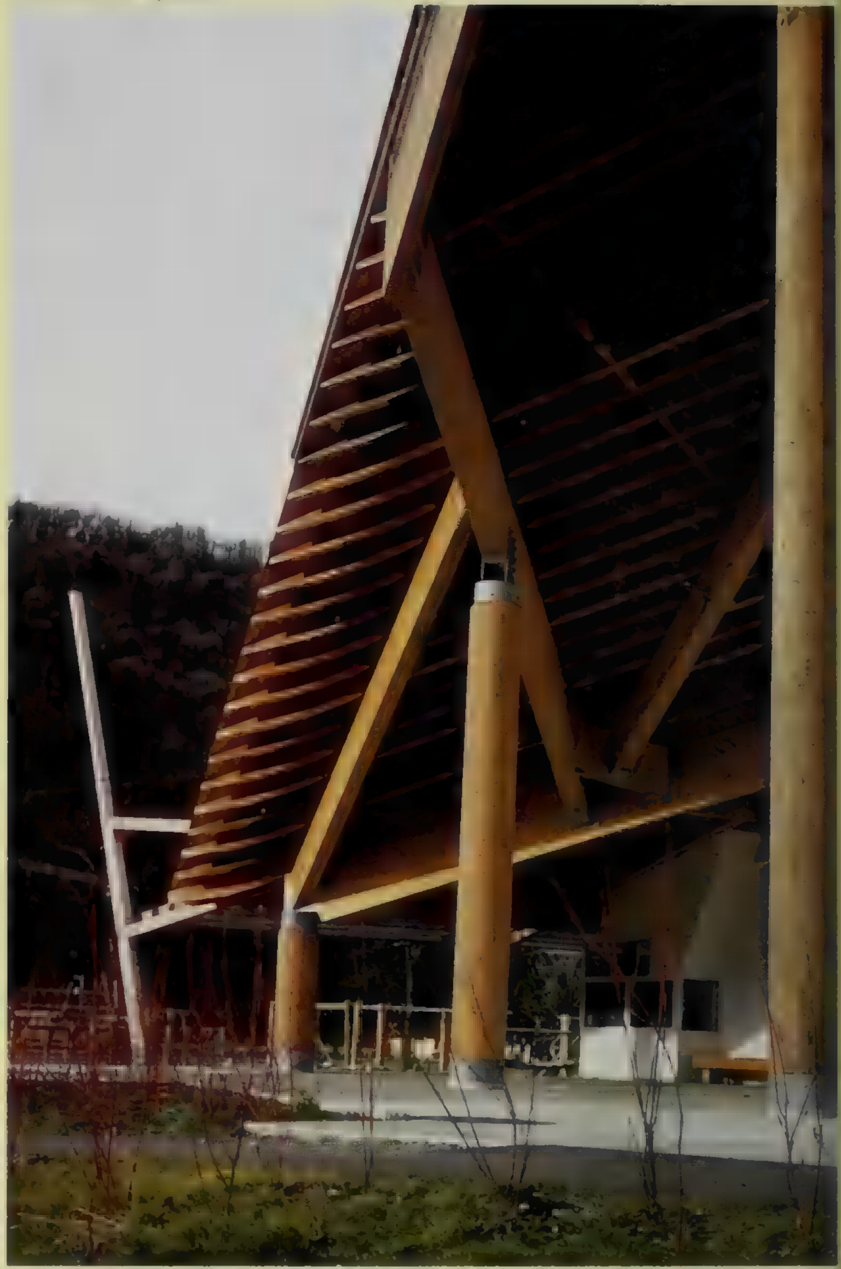

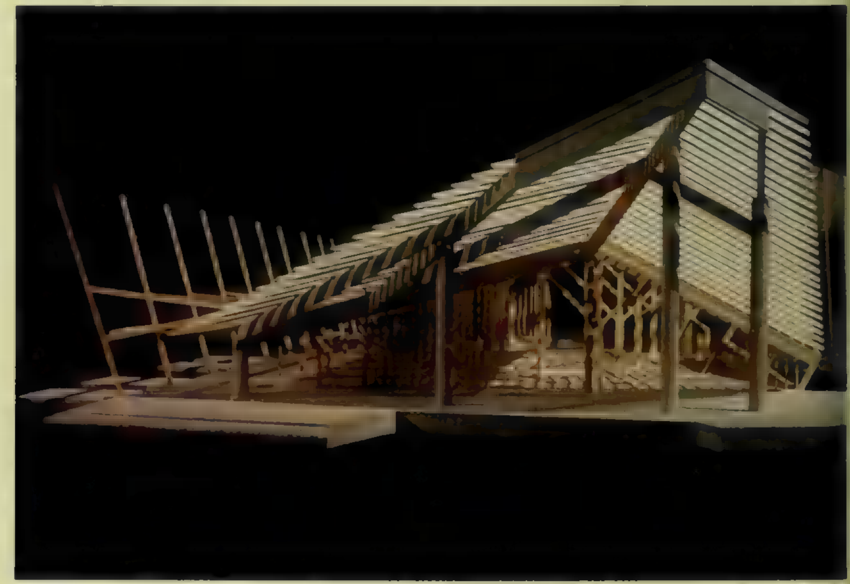

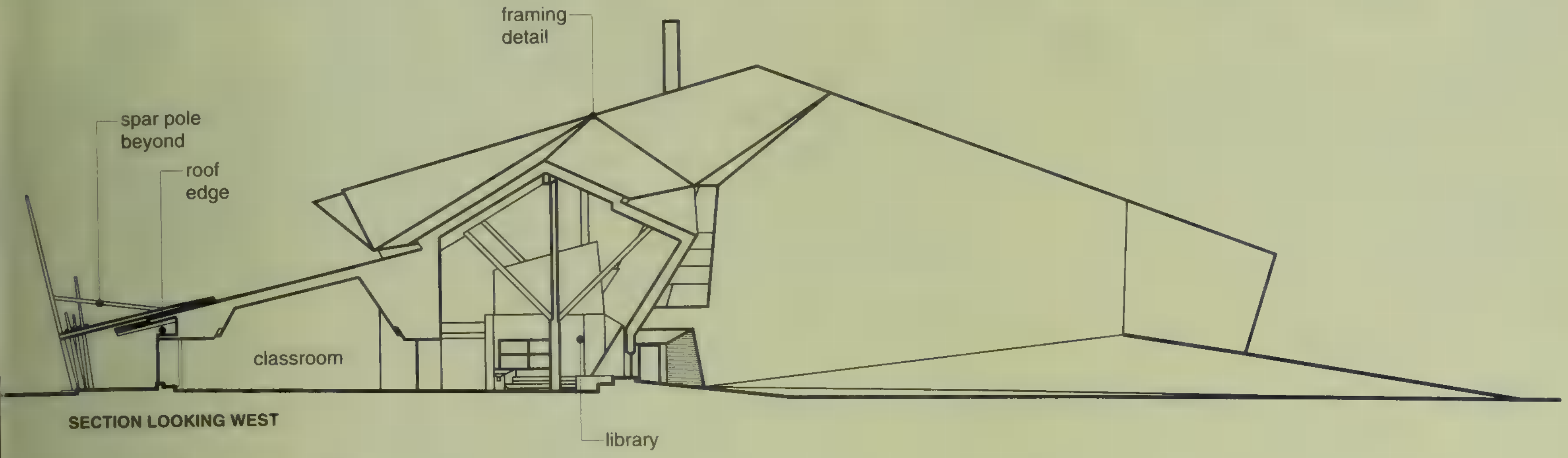

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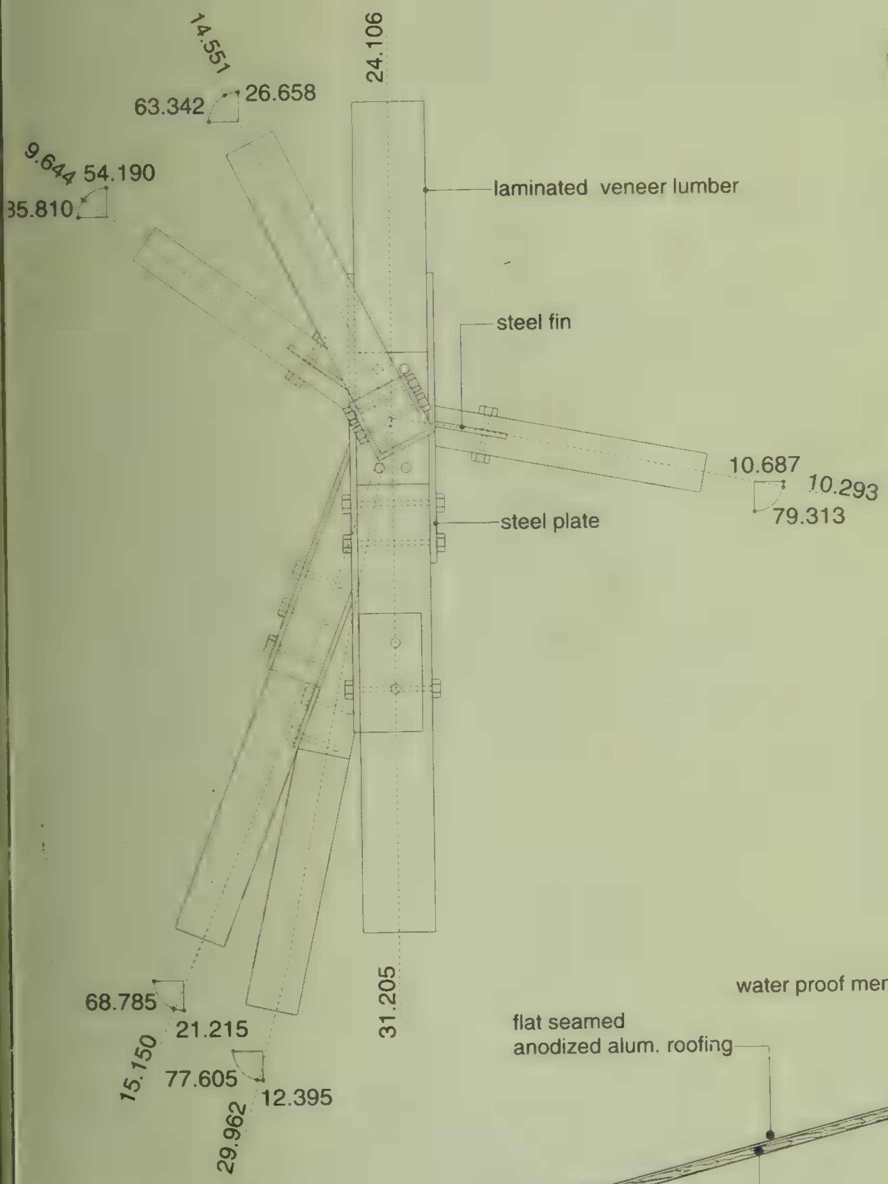
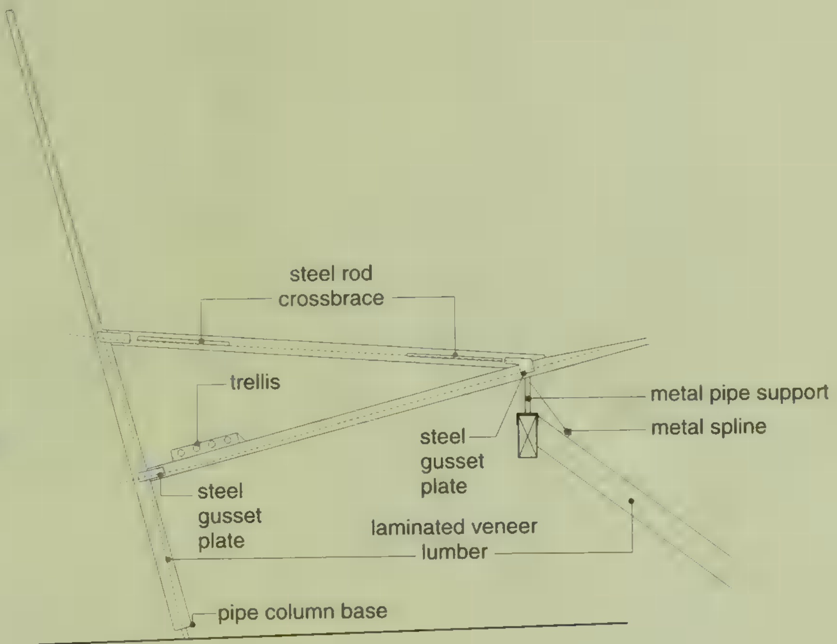
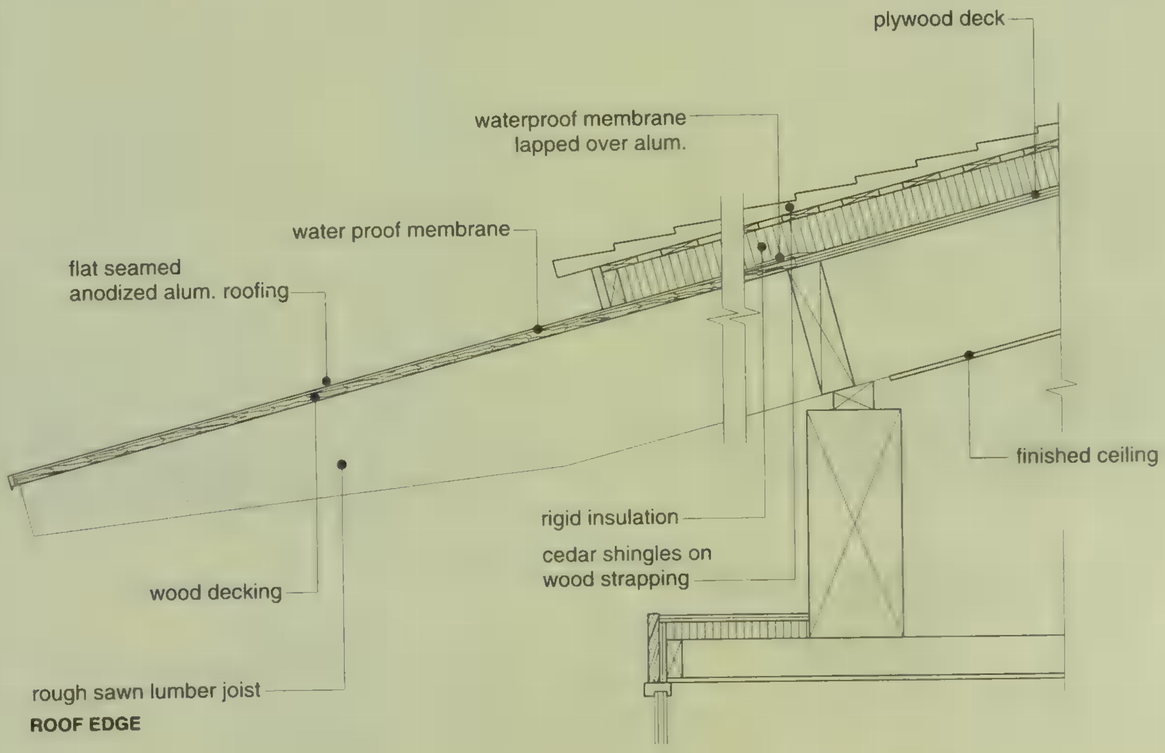




SPAR POLE DETAIL


plywood deck
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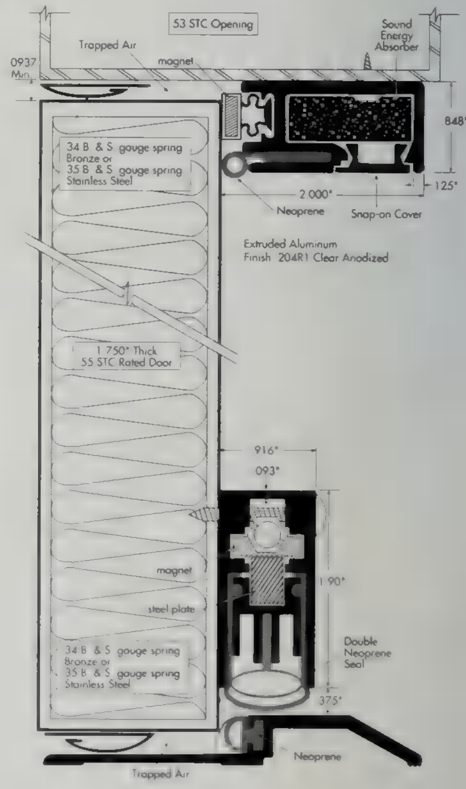
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Sound Energy Absorber
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.848"
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.125"
2.000"
Neoprene
Snap-on Cover
Extruded Aluminum Finish 204R1 Clear Anodized
1.750" Thick 55 STC Rated Door
.916"
.093"
magnet
steel plate
1.90"
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.375"
Neoprene
Trapped Air

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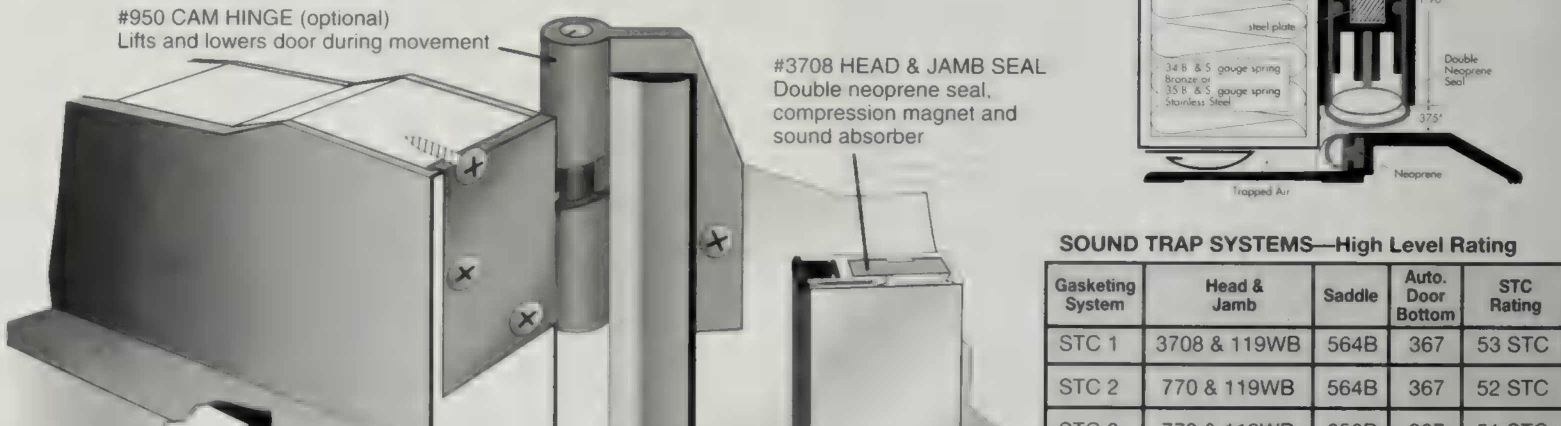
STC 2	770 & 119WB	564B	367	52 STC
STC 3	770 & 119WB	656B	367	51 STC
STC 4	170 & 119WB	564B	367	51 STC
STC 5	485 & 119WB	565A	361	49 STC


#950 CAM HINGE (optional)
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ADJUSTER NUT
MAGNET
#367 AUTOMATIC DOOR BOTTOM
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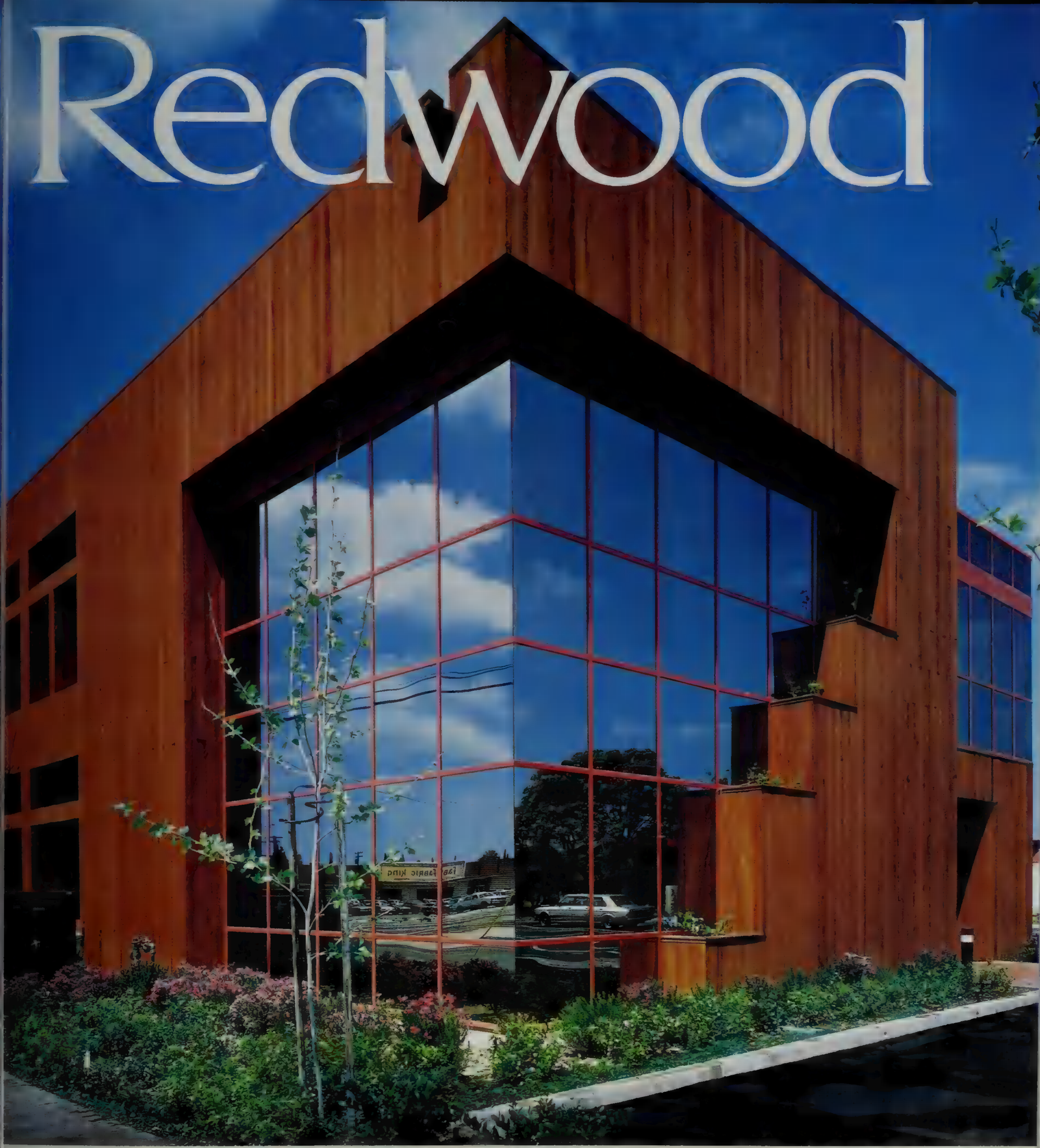

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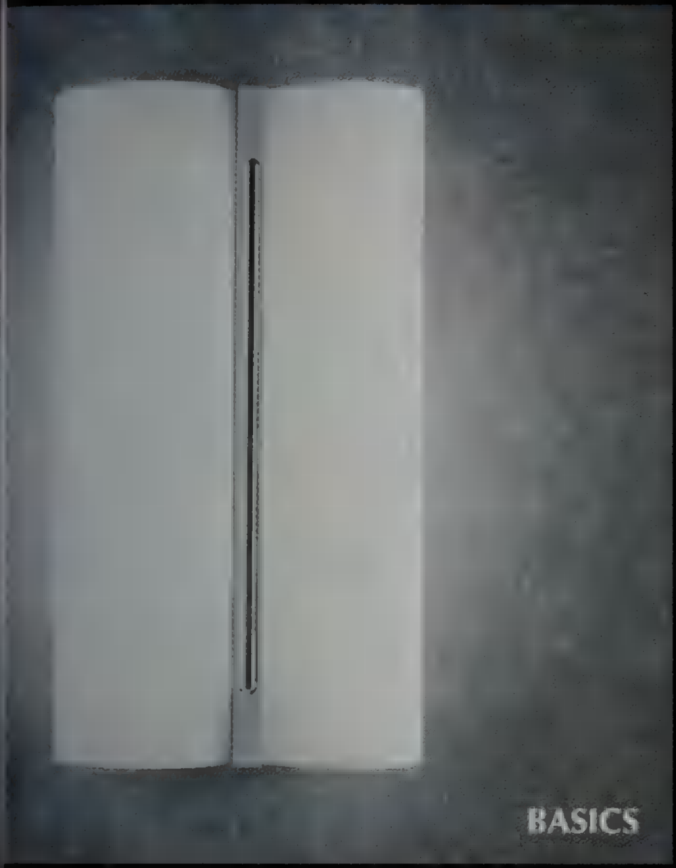

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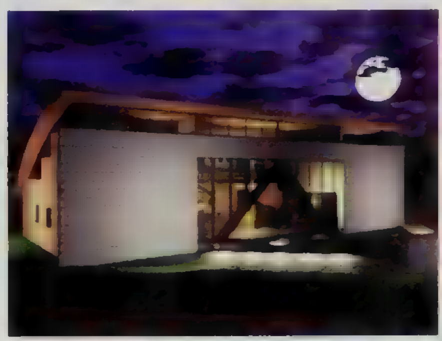

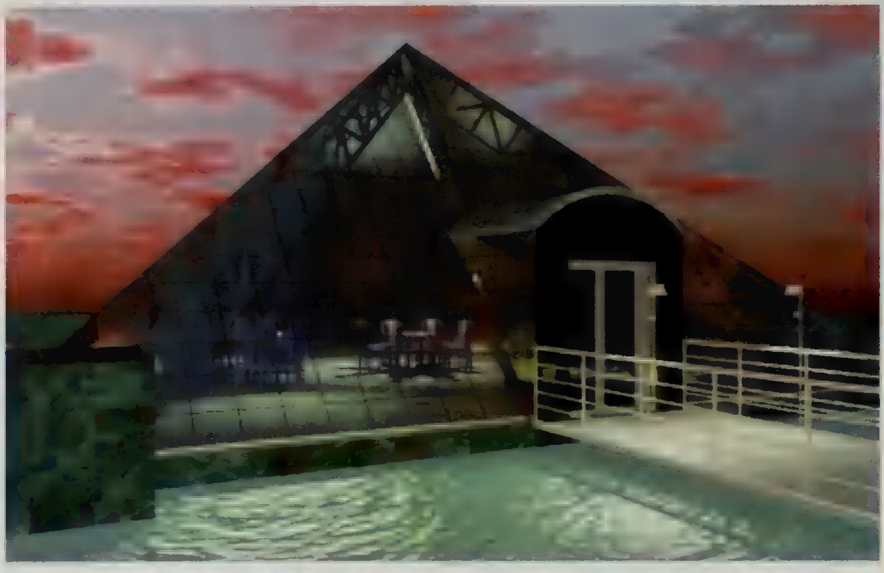

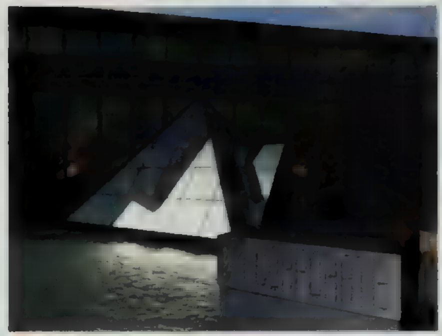

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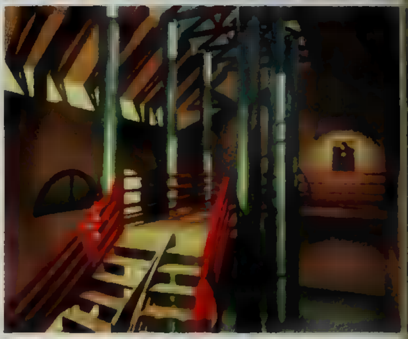

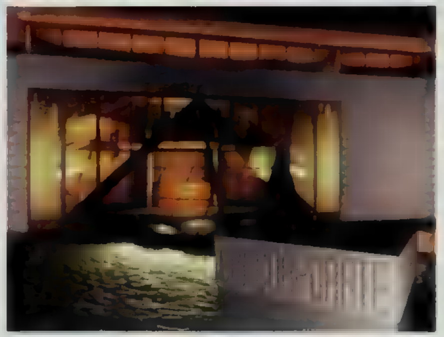

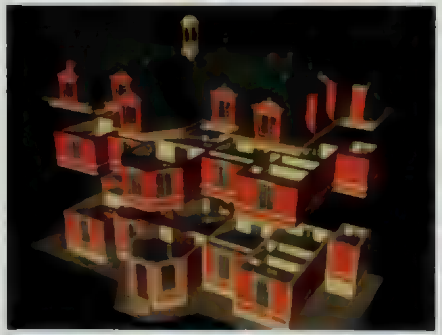

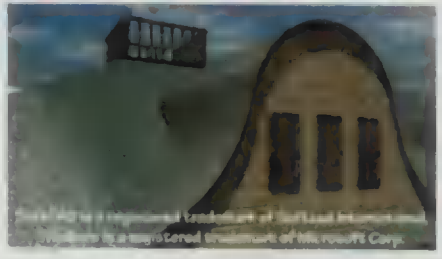

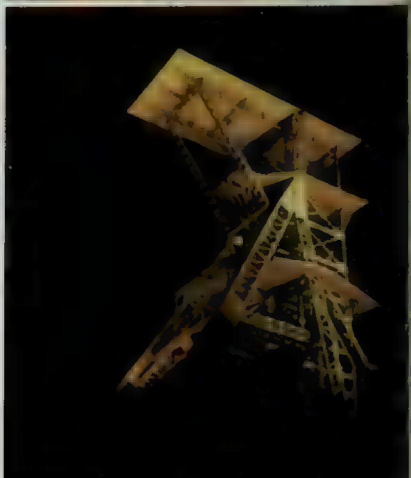

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esigners in all but the smallest offices are sed to handing "those miserable tasks" over subordinates. But the software for han-ling such tasks is getting powerful enough, nd easy enough, to use that many should be inking about reorganizing work flow.

ake Inwork, for instance. It generates F254 and 255. Until a few months ago, it as available only in DOS—tough to use, hen the final output was wedged tightly nto those boxes in the forms. The new ersion does not require the skills of a word rocessing expert—what you see is what you et. There's also a stronger database with the roject, for tracking office items that don't go nto SF254 and 255.

n Inwork competitor, by the way (RFP), as also gone Windows—"what you see is hat you get." RFP has historically had a uch stronger marketing database compo-ent. We expect to review its new version in e next month or two.

uickBooks "interviews" you about your usiness, on-screen, to set up your accounts. big brother to Quicken, QuickBooks, has atured into a fairly capable full-blown ccounting program for small offices.

eed spec writing? A new product, pecLink, guides you better than any cut nd paste system we've seen. And finding hat you need takes not much more than oint and click (if your projects fall neatly nto the CSI spec system).

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quipment required: indows 3.1 or higher, any Windows-compatle printer, 8MB of random-access memory; OS version requires MS-DOS or PC-DOS .0 or higher, PostScript printer. Large uper-VGA monitor strongly recommended r Windows version.

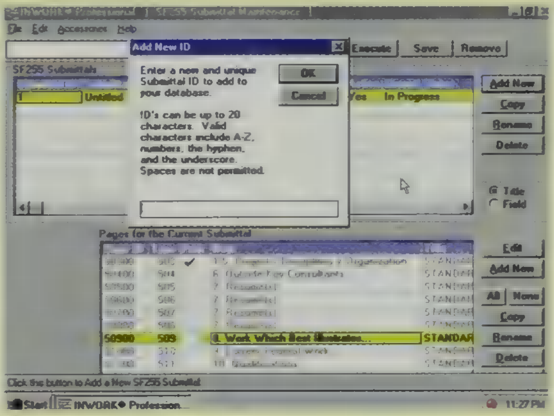
Cost: Professional Edition (marketing database as well as SF254/255), $1,195; Lite Edition for Windows or Standard Edition for DOS (both SF254/255 only), $795. Includes 90 days telephone technical support; annual contract is $195.

Inwork (the original name, changed several years ago, was SFX) is a whiz at assembling Standard Forms 254 and 255 from a database of capabilities. The new "Lite" version adds Windows flexibility and on-screen formatting. The "Professional" version also has database links that partially automate various marketing chores such as assembling brochures. The system is not meant to contain a full marketing database, however. That is, you can't, for instance, easily use it to generate prospecting letters tied to specific project types.

Once you've set up the system, you can insert resumes, project types, and so forth into the SF254/255 format just by clicking on a scroll box title, or by specifying what you want with a database query—all projects of a certain value or type, for instance.

The professional edition can track more data than would be required by an SF254/255. You query with SQL-like commands.

Manual: A looseleaf, tab-indexed "how-to."
Ease-of-use: Good. The biggest problem is adjusting printers, especially older ones that have a printing area barely large enough to handle the SF254/255 page size.
Error-trapping: Good. It's tough to overwrite important files, except at installation.
151 *on Reader Service Card*



Enter a new and unique Submittal ID to add to your database.

ID's can be up to 20 characters. Valid characters include A-Z, numbers, the hyphen, and the underscore. Spaces are not permitted.

Click the button to Add a New SF255 Submittal

An SF255 maintenance screen from Inwork, with a new submittal added to the database.

QuickBooks Pro 4.0

Vendor: Intuit, Box 3014, Menlo Park, Calif. 94026. 800/781-6999; http://www.intuit.com.

Equipment required: Computer capable of running Windows 3.1 or higher, 4MB of RAM (8MB strongly recommended), or Macintosh with 68020 or newer CPU, or Power Macintosh, System 7.0 or higher, 8MB minimum. CD-ROM with animated help files available on Windows version only. Modem for optional World Wide Web connection.

Cost: Estimated street price $189; $50 rebate for existing Quicken and QuickBooks users.

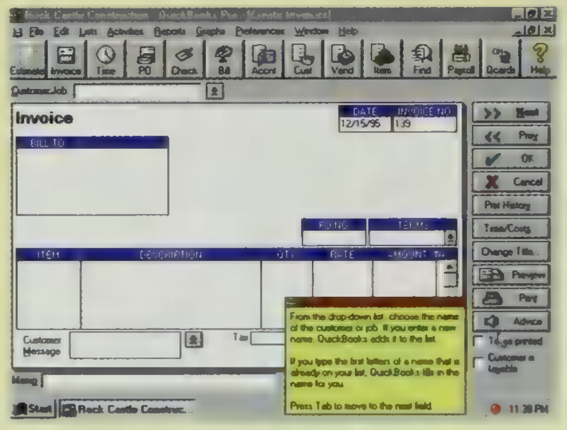
Smaller firms (roughly four principals or fewer) should take a close look at QuickBooks Pro, from the same folks who provide Quicken and TurboTax. The program comes with architect-specific templates to help organize your books. There are manuals and (in the CD-ROM version) on-screen tutorials. In fact, you can start by having the software itself quiz you about details of your business.

The package's biggest strength from an accounting point of view is that when it comes to revenue and expenses, its underlying database is actually double-entry. In double-entry bookkeeping, you can't cancel a posted transaction by erasing it. You must post (enter) another transaction that "reverses" the first. This allows your financial records to be fully audited.

Double-entry bookkeeping is cumbersome for the financially challenged, however. So QuickBooks Pro simply hides the fact that it is doing it. You use an on-screen interface that looks like you are filling in an invoice, paying a bill, and so forth.

There have been many improvements in the software since the DOS-based QuickBooks was reviewed by us a few years ago. But there have also been improvements in the standard Quicken, the Intuit package meant for individual family use. There's also an intermediate product, QuickBooks, that lacks some of the features of the "Pro" version.

Each product adds on to the next. The standard Quicken, for example, allows you to



DATE: 12/15/95 INVOICE NO: 139

From the drop-down list, choose the name of the customer or job. If you enter a new name, QuickBooks adds it to the list.

If you type the first letters of a name that is already on your list, QuickBooks fills in the name for you.

Press Tab to move to the next field.

Invoice entry screen for QuickBooks Pro.

track checking accounts and credit cards, print and write checks, output 10 business report and graph types, and do limited accounts receivable and payable (no audit trail) and expense budgeting. If you want to add payroll check writing and payroll tax accounting to Quicken, you buy a separate package, QuickPay.

QuickBooks has QuickPay built-in, along with the more robust double-entry accounts receivable and payable. QuickBooks also includes an invoicing module and the ability to send regular statements to your receivables list. There's also inventory tracking and cutting of purchasing orders, some basic job costing and budgeting and, (new with version 4.0) 80 reports, contract management and, in the CD-ROM version, the business and legal libraries.

The Pro version, which costs about $50 more, has more job costing and budgeting features, a screen for estimates and bids, and time tracking. The Pro version can output about 90 reports.

Pro 4.0 adds quite a bit of functionality to earlier versions. The payroll module, for instance, now not only handles earnings and deductions and prints checks. Now it does forms 940 and 941, W2, W3, and 1099. You can subscribe to tax-table updates (U.S. only). Reports can be customized.

Files from the less advanced packages can be read into the more advanced ones. For Windows versions, you can even exchange data with the TurboTax, Intuit's tax package. For instance, Quicken and QuickPay files can be read into QuickBooks and QuickBooks Pro. The conversions may not be totally automatic, due to the security features of the Pro version, however. Thus, you could be running two sets of paychecks for the same person in QuickPay—but not in QuickBooks Pro.

The initial cost is so low in part because of Intuit's volume and in part because the company hopes to sell you business forms, updates, and Internet-based banking services.

QuickBooks Pro is network-aware; more than one copy can run on a network at the same time. But only one copy can use the same data file at the same time. That is, a file being used is locked, rather than only a single record in a file. It comes with an Intuit-only version of Netscape Navigator to connect with the company's services.

Manuals: Paperback User's Guide, getting started guide, and guide to CD-ROM files. The CD-ROM-based guides, including one specific to architects, can be printed out.
Ease-of-use: User-obsequious. The Web browser (Netscape Navigator) can't be installed alongside existing copies of Navigator.
Error-trapping: Excellent. The biggest problems involve conversion, especially if you switch over from your current system (or no system) in mid-year.
152 *on Reader Service Card*

SpecLink Version 1.0

Vendor: Building Systems Design, Inc., 1175 Peachtree St., 100 Colony Square, Suite 1600, Atlanta, Ga 30361. 404/876-4700; fax 404/876-0006; 800/266-SPEC.

Equipment required: Computer capable of running Windows 3.1 or higher, 8MB of random-access memory (16MB strongly recommended), CD-ROM player. Files take 43MB on your hard drive, plus CD-ROM.

Cost: Comprehensive, $1,595 ($1,395 annual renewal); Architectural alone, $1,195 ($995 renewal). Annual subscription includes four quarterly updates, newsletter, telephone support, on-line BBS.

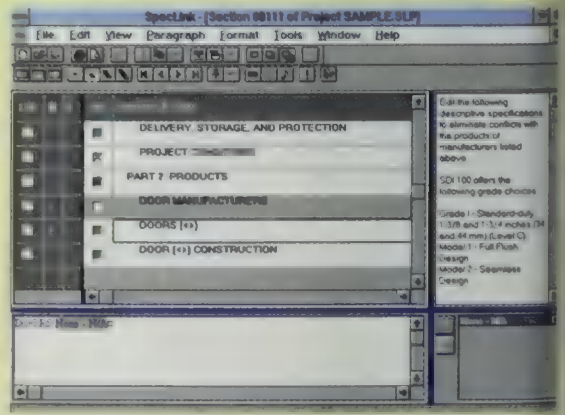
SpecLink (formerly Comspec) gives you CSI's MasterFormat on a CD-ROM disk. The text is not accessed through a word processor, however. Instead, it has been entered into a database (under the hood, a Microsoft Access database). Thus, you can do far more than cut and paste paragraphs. Sections of the database are linked so that once you find one piece you need, you are connected to the others. You can also create your own links.

You select the text you want to include in your spec, rather than cut away the text you don't. The underlying database remains inviolate, so that quarterly updates sent by BSD don't disturb the links and selections you've created for specific projects or for an office spec. You can buy a license for more than one user on a network.

The database system is bulky (43MB on your hard drive!), but stable—it is based on Microsoft Access (a database program) with a "front end" (the screens a user sees) created in Visual Basic.

The overall effect is startling—a system that designers might actually use in a small office, rather than handing over to a secretary familiar with word processing or a part-time spec writer.

Manual: An 82-page paperback.
Ease-of-use: Pick up the meaning of a few unfamiliar icons and it's all you need.
Error-trapping: It's easy to fix mistakes.
153 *on Reader Service Card*


SpecLink - [Section 08111 of Project SAMPLE.SLP]
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Edit the following descriptive specifications to eliminate conflicts with the products of manufacturers listed above.

SDI 100 offers the following grade choices:

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Model 2 - Seamless Design

SpecLink's array of specifications shows how they can be searched as you would an indexed, printed document. Then you can follow links to relevant sections.

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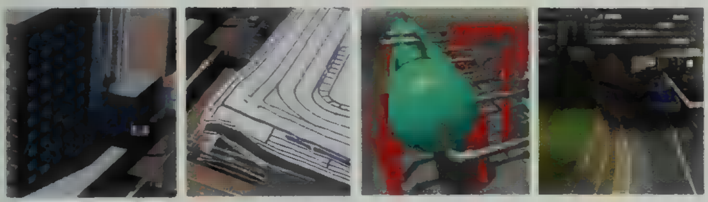

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Engineered-Wood Products And Design/Spec Tools

154. Veneered glulam timbers

A natural-wood veneer option is offered as a "premium appearance" upgrade for laminated-beam structural frame members in applications requiring a higher level of finish.

The mill's unusual joinery technique uses concealed fasteners in place of steel hangers or joinery plates. Beams are connected by mortise and tenon joints (far right), and mechanically fastened by a "timber lock" device: a 5/8-in. hex-head concealed bolt that draws members together. The mahogany veneer is available in 1/4-in.-thick flitches 18 ft long, and has a close-grain pattern that effectively hides joints where sections of veneer meet. Other species can be used. After the beam is fabricated to size, the veneer finish is epoxied under pressure. Radiused members can also be veneered; product is approved for exterior locations. Harper Owens Architects of Kent and Greenwich, Conn., designed an 18- by 56-ft lap-pool enclosure using veneered timbers in an exposed structure (below, in construction view). Here, the tapered beams project beyond the wall; the ends have been covered in pieces of end-grain veneer. 802/674-6145. Green Mountain Precision Frames, Windsor, Vt.

155. Engineered wood CD-ROM

A technical library on a disk, a new reference from APA–The Engineered Wood Association contains complete versions—including text, drawings, photographs, and tables—of 24 publications most requested from the association. The data includes such wood-construction systems as glulams, performance-rated OSB, composite and plywood panels, shear walls and diaphragms, all-wood foundations, engineered-wood deckings, and non-residential roof systems.

Available in both Windows and Macintosh versions, the electronic format permits several types of information searches: by topic, by subheading from the main subject list, or by locating a word or phrase within text. Price is $59; platform requirements and ordering information: 206/565-6600, x189. APA–The Engineered Wood Association, Tacoma, Wash.

156. Plastic-reinforced glulam

A 1996 winner of the Civil Engineering Research Foundation's Pankow Award for Innovation, structural glued-laminated wood beams (glulams) reinforced with fiber-reinforced plastics are now made and distributed under the trade name FiRP Reinforced glulam. An International Conference of Building Officials (ICBO) Evaluation Report has approved a method of developing allowable design values for the timbers, which have significantly increased—by 30 percent—span and load capacities at smaller cross-sections than conventional glulams. The performance criteria for the end product determines the thickness, width, and placement of the carbon/aramid/glass-fiber composite reinforcing layer; the finished beams are not priced higher than standard glulams of similar load capacity, says the company.

By combining the environmental and installation advantages of a wood product with increased load capacity, tensile strength, and improved seismic behavior, FiRP beams are said to be able to compete with steel and concrete materials in many structural applications. 503/836-2000. American Laminators, Drain, Ore.

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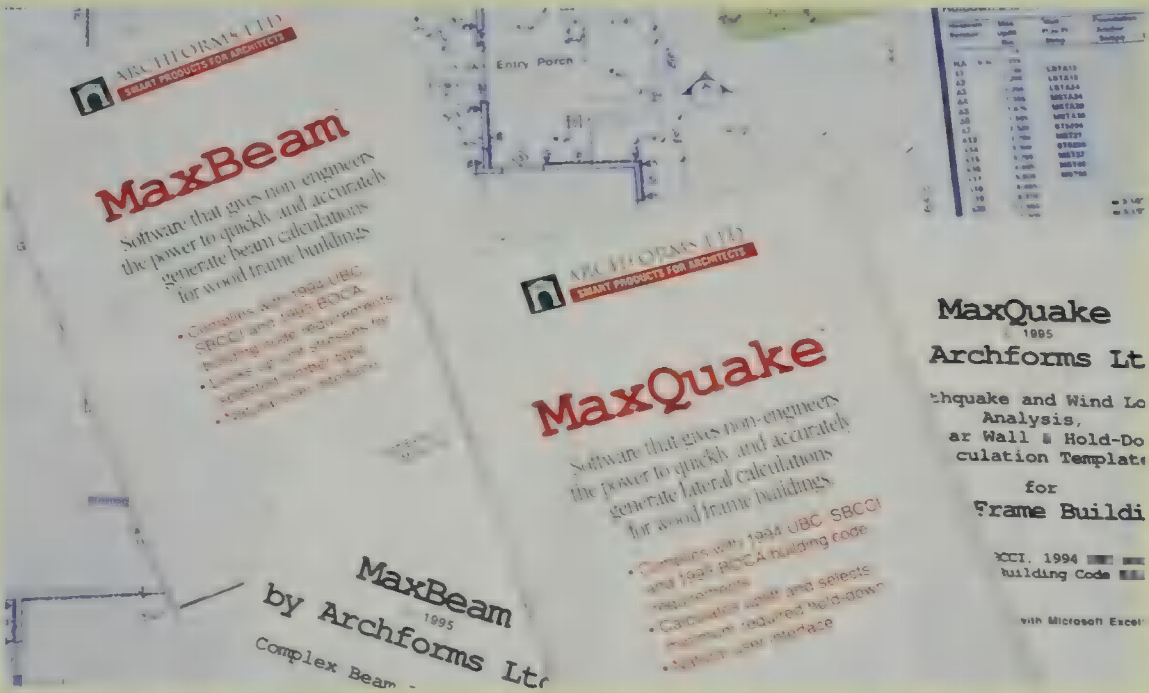
57. Wood-frame design software
aid to give an architect or builder "total ontrol" over small wood-frame projects, IaxBeam and MaxQuake programs easily enerate complex beam, earthquake, and ind calculations, and produce fully docuiented reports as required for building-ermit consideration. Developed by architect arick Hill, the software is a tool that identies structural problems early in the design rocess, and immediately suggests possible tructural-design alternatives. Designed to e "intuitive," the software performs all calulations based on minimal input from users. 3oth programs comply with the most recent JBC and SBCCI codes. $149 each; $250 undled. Requires Microsoft Excel; MS-)OS, Windows, and Macintosh versions vailable. 800/958-ARCH. Archforms, Ltd., 'ortola Valley, Calif.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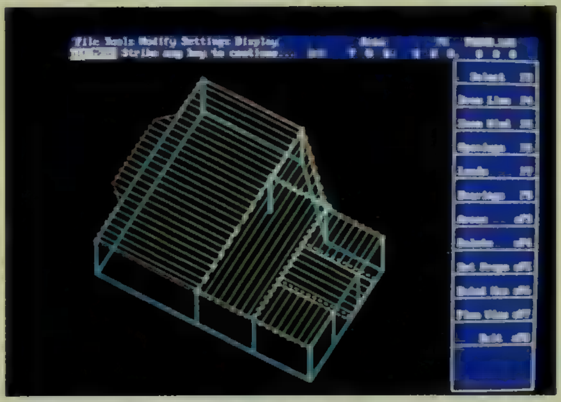
Complex Beam
Entry Porch

58. Long-length wall system
his maker's FrameWorks line of structural uilding components has added a new engieered-wood product. TimberStrand LSL remium Studs are made in lengths as long s 16 ft. Like other structural elements made ith laminated-strand technology, the studs se material from fast-growing tree species ke aspen and poplar, offer predictable bading behavior, and are free of the knots or ther natural defects of sawn lumber. Studs re said not to warp, twist, or shrink either n the job site or after installation. Available s nominal two-by-fours and two-by-sixes, he 1.3E studs can be used in the construcion of interior and exterior walls of singlend two-family homes as allowed by local odes.

lso new: a Windows-format version of TJ-Kpert software, said to offer specifiers and umber dealers full access to loading, perfornance, dimension, and other data about any 'rameWorks structural component. Working rom supplied floor plans and dimensions, the rogram creates the most economical framng design based on all current ICBO codes. The software lets the user capture plan and ayout information directly from a CAD rawing. 800/338-0515. Trus Joist MacMillan, 3oise, Idaho. ■



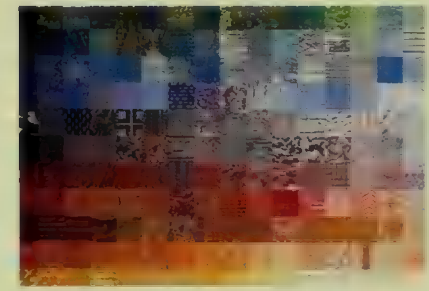
159. Free-standing ceiling
A conceptual-design project headed by Merritt Seymour, Interior Trees mimic structures found in nature—roots, trunk, branches, leaves—while they define space, route ventilation air and power cabling, diffuse upwardly directed lighting, and temper noise levels. "Trees" can be placed in a space to create a supportive environment. Comments? 312/822-3400. USG Interiors, Chicago.

160. Oversize roof tile
A new-looking roof option, XL Series tiles are a larger-format, easier-to-install version of this maker's interlocking flat designs such as Classic and Williamsburg. The clay body has minimal water absorption and resists impact damage; at 10 7/8- by 16-in., it is slightly longer than standard tiles. 800/945-8453. Ludowici Roof Tile, Inc., New Lexington, Ohio.

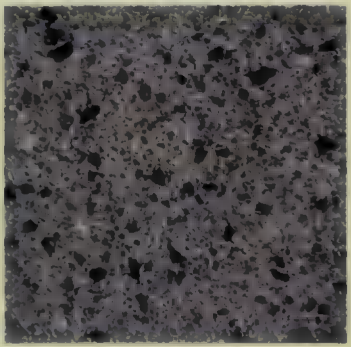
161. Disk-format EIFS manual
An interactive Windows-based program helps match the site and program needs of a specific project with the most appropriate Sto system and architectural coating. Data is displayed in text, tables, and images, all of which can be exported to other documents; a Showcase section presents each product in depth. Platform and ordering: 800/221-2397. Sto Corp., Atlanta.

162. Egress roof window
When located within reach, as required, Model GPL windows can help some attic and loft area living spaces meet egress codes. Wood-framed units have large, unobstructed glass areas, and open a full 45 degrees. Even when closed, an integral ventilation flap lets stale interior air out and fresh air in, reducing humidity levels. 800/283-2831. Velux-America, Inc., Greenwood, S.C.

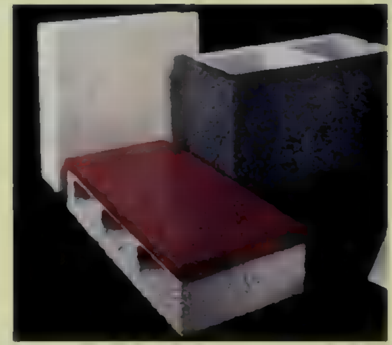
163. Flexible stacking chair
Intended to offer comfort and squirm-room through long bouts of sitting, the Zooey Chu stacker (named for its designer) has a flexin molded-shell back and wire-rod frame. One of several Neocon 1996 introductions planned by Haworth, the chair offers multiple color options. 616/393-1604. Haworth, Inc. Holland, Mich.



164. CAD materials library
For use with rendering and paint software, Just Textures CD has ove 900 seamlessly tileable patterns—brick, fabric, floors, granite, wood—that will repeat in all directions whe mapped onto 3D objects. There are also 300 element textures—cars, rugs, plants, etc. All can be used directly from the CD. Price: $199 (royalty-free). 800/458-0609. KETIV Technologies, Inc., Portland, Ore.



165. Stone-pattern solid surfac
A realistic pattern that replicates th specks of mica found in natural ston gray-green Willow is one of three new Crystelle colors in Avonite's translucent-appearing Decor series. Stone-look and solid color Avonite is available in Class I and Class III materials. An architectural sample board contains pieces of all eight Crystelle patterns. 800/428-6648. Avonite, Belen, N.M.



166. "Granite" wall in one ste
Lightweight Aristocrat masonry units are glazed in several layers, which gives the face a deep and light diffusing appearance. Block is said t combine the look of marble, granite, or solid-color stone with the economics and structural performance of a load-bearing wall. Available in several sizes, including 16- by 16-in. units. 800/233-1924. Trenwyth Industries, Inc., Emigsville, Pa. 17318. ■

Short takes

Bigger and bigger. Describing itself as the largest building materials company in the world, Paris-based Compagnie de Saint-Gobain announced three new business ventures. CertainTeed Corporation, of Valley Forge, Pa., Saint-Gobain's U.S. subsidiary, will work with Ecophon AB of Sweden to market architectural acoustical ceiling products made in Europe. Also, CertainTeed has acquired the Bird Corp., a producer of asphalt roofing in Norwood, Mass. The parent company itself acquired Advanced Glass Systems, Trumbauersville, Pa., which makes security and special-use glazing incorporating a resilient polymer core.

Sound bite. USG Interiors, Inc., Chicago, will spend $45 million to increase the capacity of its Auratone acoustical-ceiling tile plant (Greenville, Miss.) to meet strong commercial and retail demand from the U.S. and Pacific Rim countries.

Wood-frame construction. The 1995 SBC High Wind Edition of the Wood-Frame Construction Manual from the American Wood Council gives engineered and prescriptive design requirements for one- and tw family dwellings in high-wind areas (90-120 mph). Covers structural elements and connections, and explains new perforated shearwall and wall-stud system factors. 800/89 7732. American Forest & Paper Association, Washington, D.C. ■

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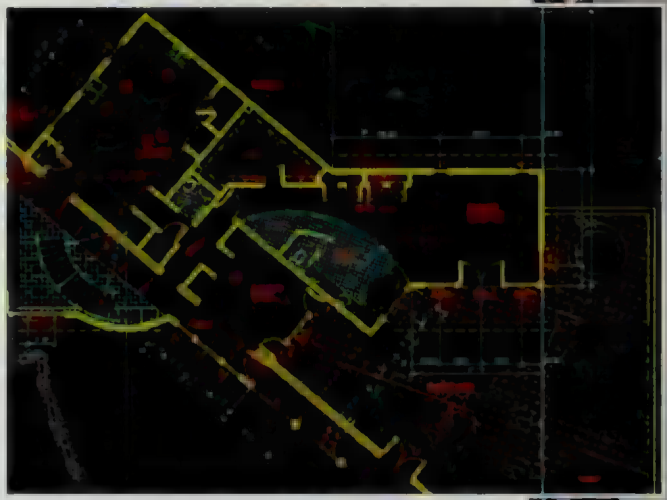

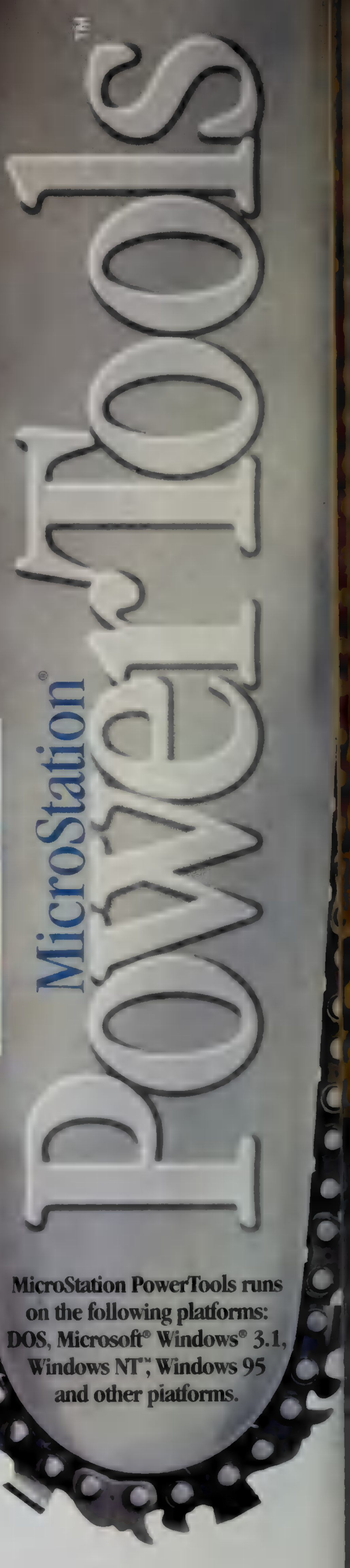
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[1] [illegible] performed by Robert Martin of Value Engineering Associates comparing PowerArchitect and [illegible] to generate the same typical commercial architectural drawing. The same method of construction [illegible] and the operators were at the same level of proficiency in both packages.

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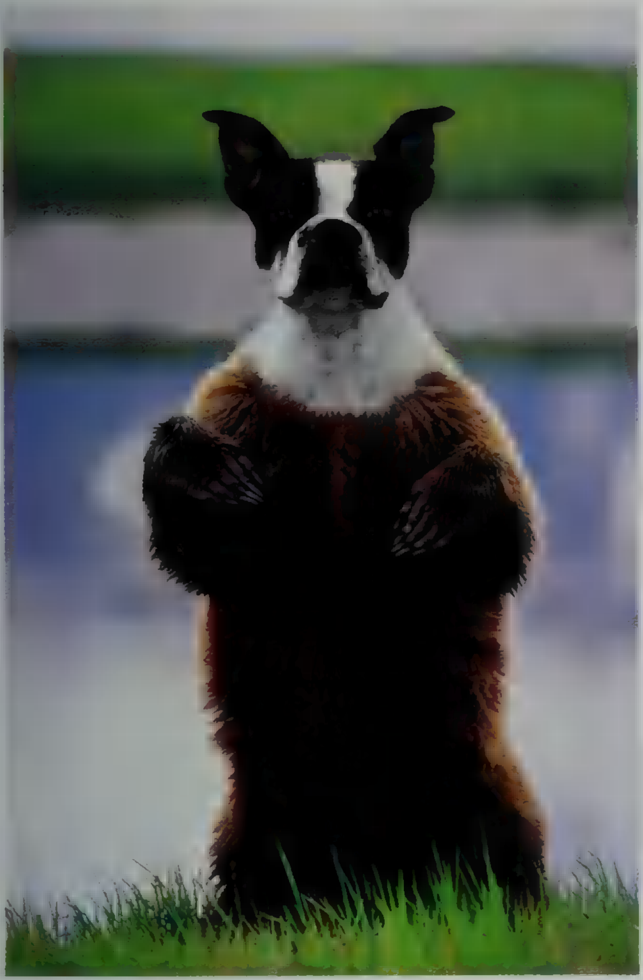

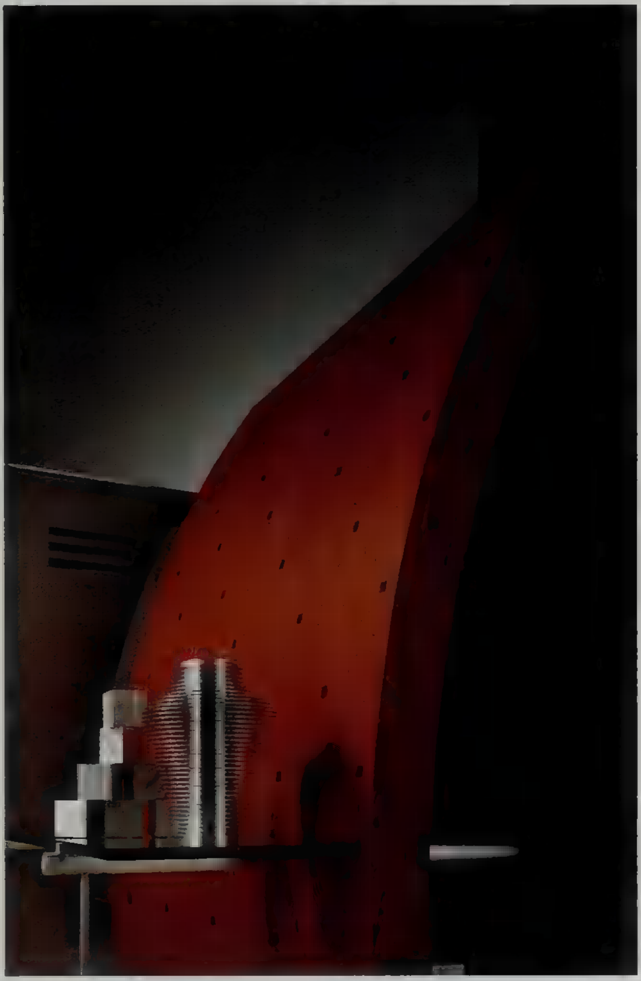

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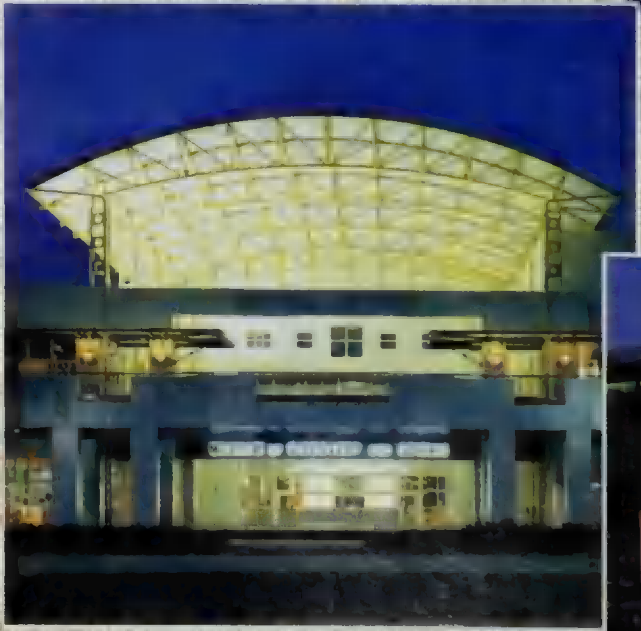

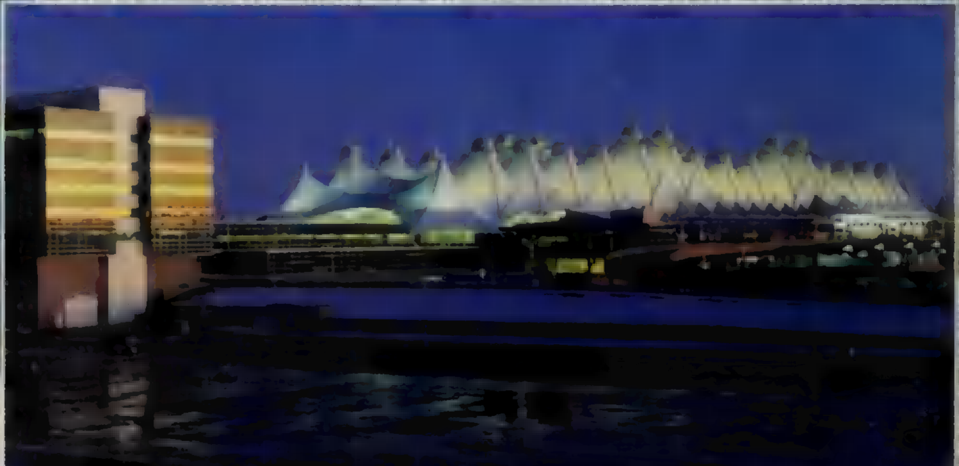

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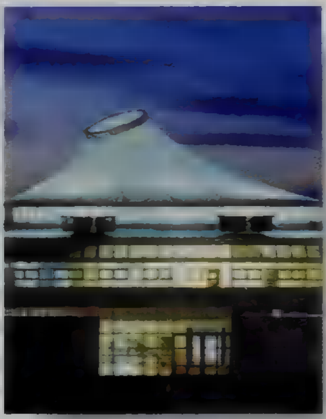

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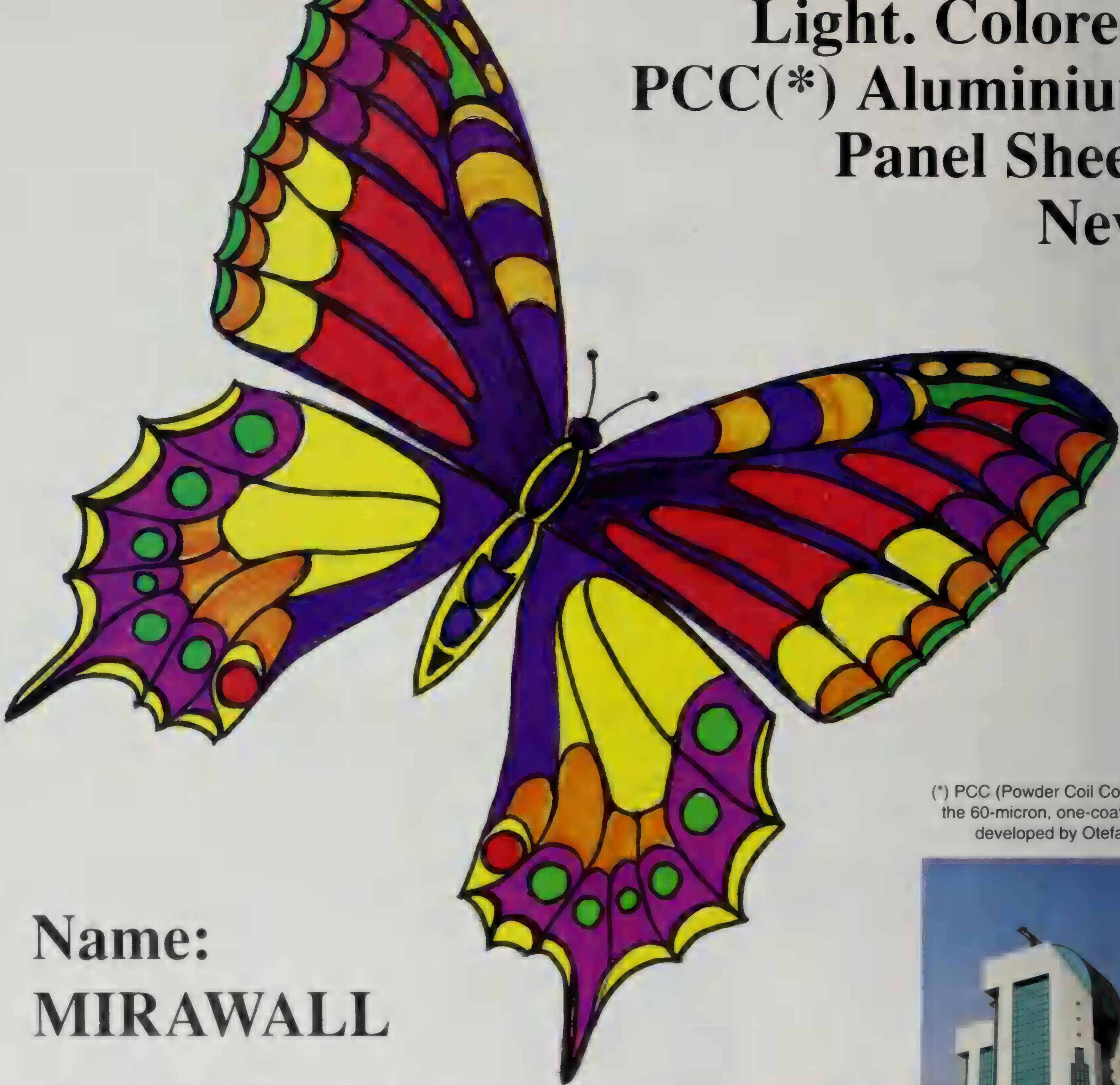

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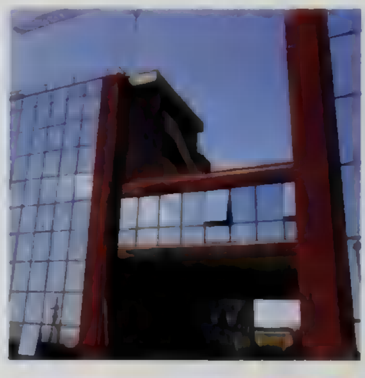

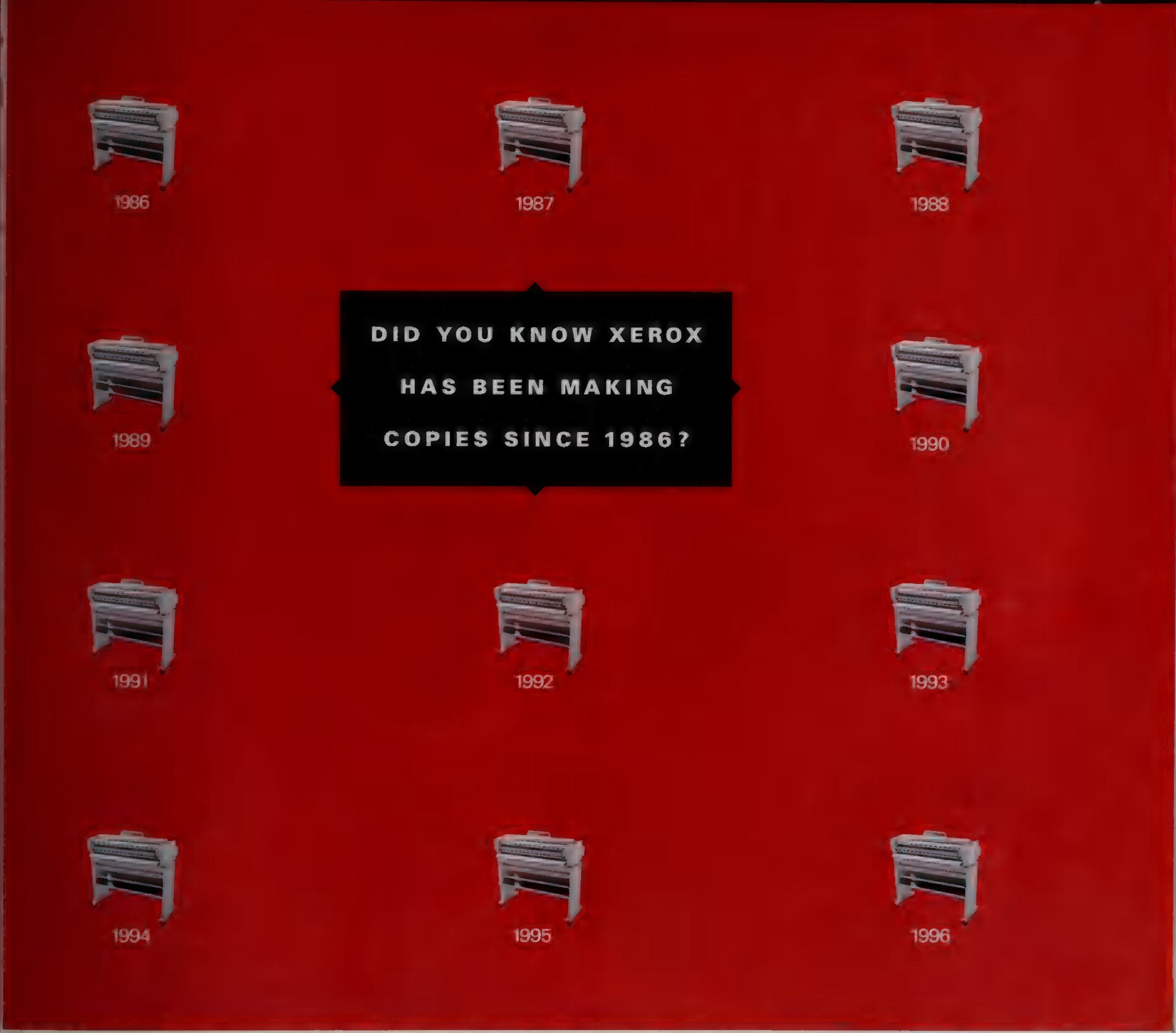

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In this issue RECORD uses the featured buildings to highlight special challenges facing American architects as they practice in today's shifting business and social environment. Each of the four buildings represents one or more such challenges.

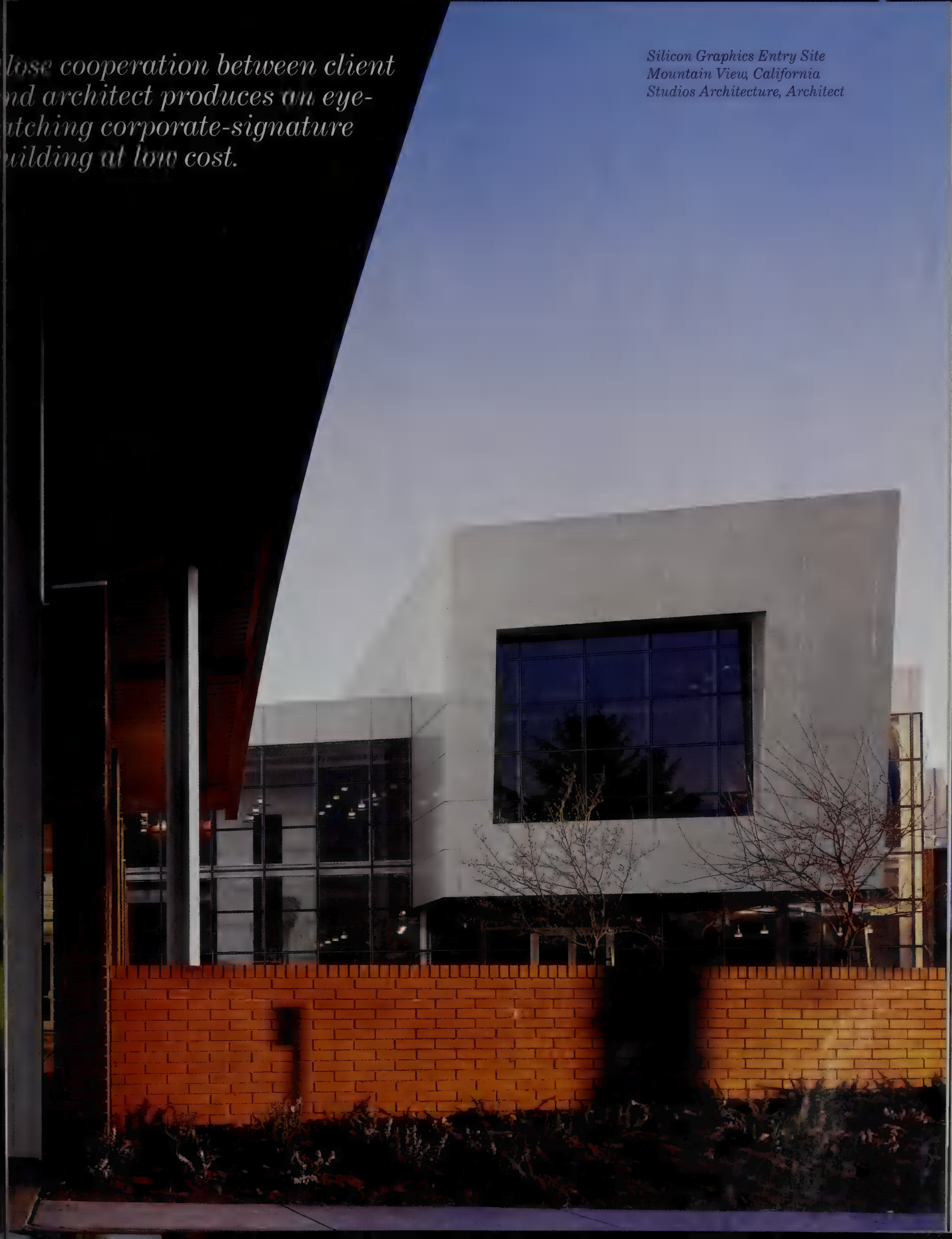
Silicon Graphics Shorelines Entry Site in Mountain View, California, by Studios Architecture (pages 72-79) echoes the demands of a new type of architecturally enlightened client who wants a unique facility but insists on tight schedules and budgets. The Amtrak station at Solana Beach, California, by Rob Wellington Quigley (pages 96-103), is an extraordinary example of an architect who took an active, participatory role with the community in extending what might have been an ordinary train station into a popular community landmark. Suntec City, by New York City-based architects Tsao & McKown (pages 86-95), is not just a successful example of a large overseas project by an American architect; it shows that urban values can be maintained even in this $1.4-billion mixed-use development in downtown Singapore. William Rawn's Music Building at Phillips Exeter Academy, Exeter, New Hampshire (pages 80-85) is a happy effort by the architect to design a building that accommodates state-of-the-art audio/visual and acoustics systems on a 215-year-old traditional campus.

Also echoing the issue's theme, Building Types Study 737 (pages 104-113) chose retail facilities to pinpoint a growing role for architects in representing a retailer's image across different cities and locations. *S.A.K.*

anufacturers' Sources
sted on page 130

Agile Architecture

lose cooperation between client nd architect produces an eye-atching corporate-signature uilding at low cost.



Silicon Graphics Entry Site
Mountain View, California
Studios Architecture, Architect

Ray Johnson, director of corporate facilities for Silicon Graphics, has a simple reason why the company's Gateway Building eschews the usual Silicon Valley anonymity, and instead adopts eye-catching angles, colors, and exposed structure: "We're a visualization company so we have to make a visual impact," he says. "We are anything but conventional, and our buildings should be too." No wonder that the architects at Studios Architecture, who designed this 110,000-square-foot structure, use words like "visionary, playful, and a godsend" to describe their corporate client. Yet there is a method in this exuberant madness. Each arc and angle in this two-story structure responds to a difficult site, helps create an environment of office "neighborhoods," sized for maximum flexibility and efficiency, and lets Silicon Graphics—within a very small budget—create the kind of environment that will stimulate and retain staff in the highly competitive computer-employee market.

Studios and Silicon Graphics have been working together for almost a decade. Over the years, lead designer and Studios' partner Charles Dilworth has designed a series of renovations to tilt-up or brick-clad warehouses for the company in the industrial area of Mountain View, California, that have created an ad-hoc corporate "campus." The company never had the money for fancy appointments, so Dilworth created a visual order out of existing structure, using the metal studs and drywall allowed in tenant-improvements budgets. "By now the company sees limited means as its house style," he says, "and it wants them even in its own new building."

The Gateway Building, shown here, is the first stand-alone structure the company has commissioned—the start of a one-million-square-foot campus, all designed by Studios and currently under construction. It brought the company from the anonymity typical of Silicon Valley to a site right next to the area's major freeway. "It's a port-o call," explains Dilworth. Studios' principal Erik Sueberkrop adds, "People see this place, come here to ask directions, and get referre on to the rest of the campus." "Yet neither we nor the city of Mountain View wanted it to be a boat floating in a sea of parking," Instea the curved building forms a wall close to the road that eventually breaks open, as one rounds it, to allow entry. Inside is a 14,000-square-foot training facility that also is open to the public. "This is t anchor for office neighborhoods planned like a city," says Sueberkr Those areas fit along a diagonal spine, "where people can see and shout at each other," according to Dilworth. Coffee bars, complete with cappuccino machines, form the nodes, "like home kitchens," as Sueberkrop puts it.

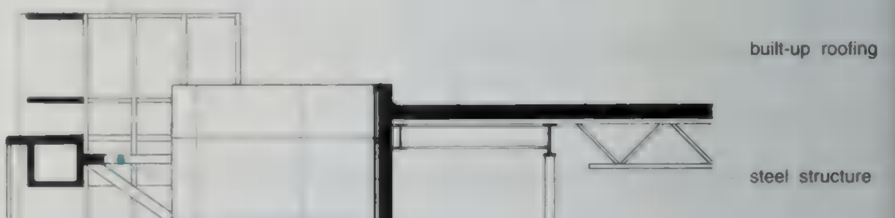
Work happens in a combination of office systems coupled with speci connectors that allow quick demounting. Studios Architecture designed a special "power pole" that brings data and power to the work stations. All of this adaptation allows Silicon Graphics to chang configurations easily. The arching roof pulls it all together. All the structural supports are clearly visible and the light comes washing down in a computer-friendly, indirect manner. Says Dilworth: "We learned to love the cheap, earthquake-resistant brace frame. Look," he says, pointing to a steel column where three different-sized members come together. "There is beauty in fortuitous discovery." At the meeting point of the electrosphere and suburban sprawl, Silicon Graphics has marked its spot with an emphatic and graceful structure. *Aaron Betsky*

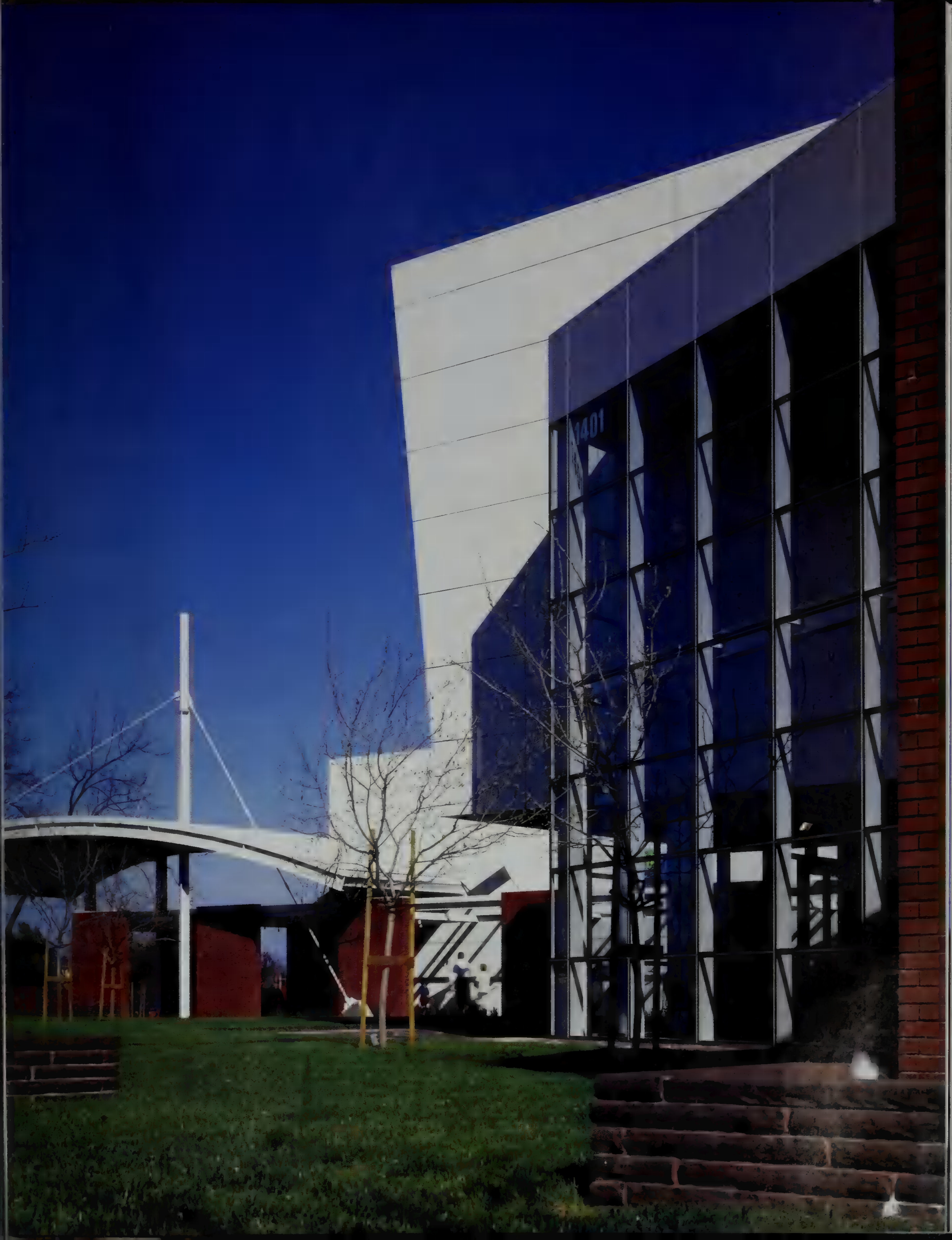
Up Close

Challenges: Work with a large client design team and still maintain a unique creative direction. Produce a lively building in a highly visible location to evoke Silicon Graphics' product innovation and, at the same time, adhere to stringent cost limitations and earthquake-resistance codes.

Program: The client required training and computer-graphics production spaces for some 300 persons working in 50-workstation groups. It also wanted a clear circulation system that would encourage employee interaction. The building was to welcome visitors and be the orientation point for a large Silicon Graphics campus now being built.

Solution: The architects and client team produced a two-story, 110,000-square-foot building arranged along a linear circulation spine. To keep costs down, the UBC Type II, steel-frame construction has been left exposed, complete with angled earthquake braces under the roof. The unusual layout of the building conforms to the curve of a nearby freeway on one side and spreads out in two wings on the other side to admit daylight deep inside the building.

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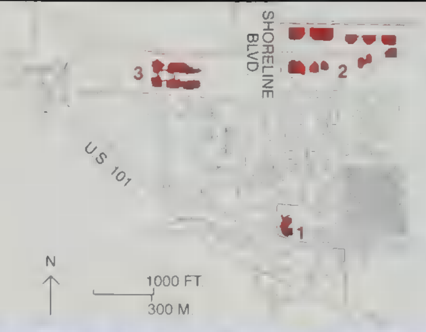
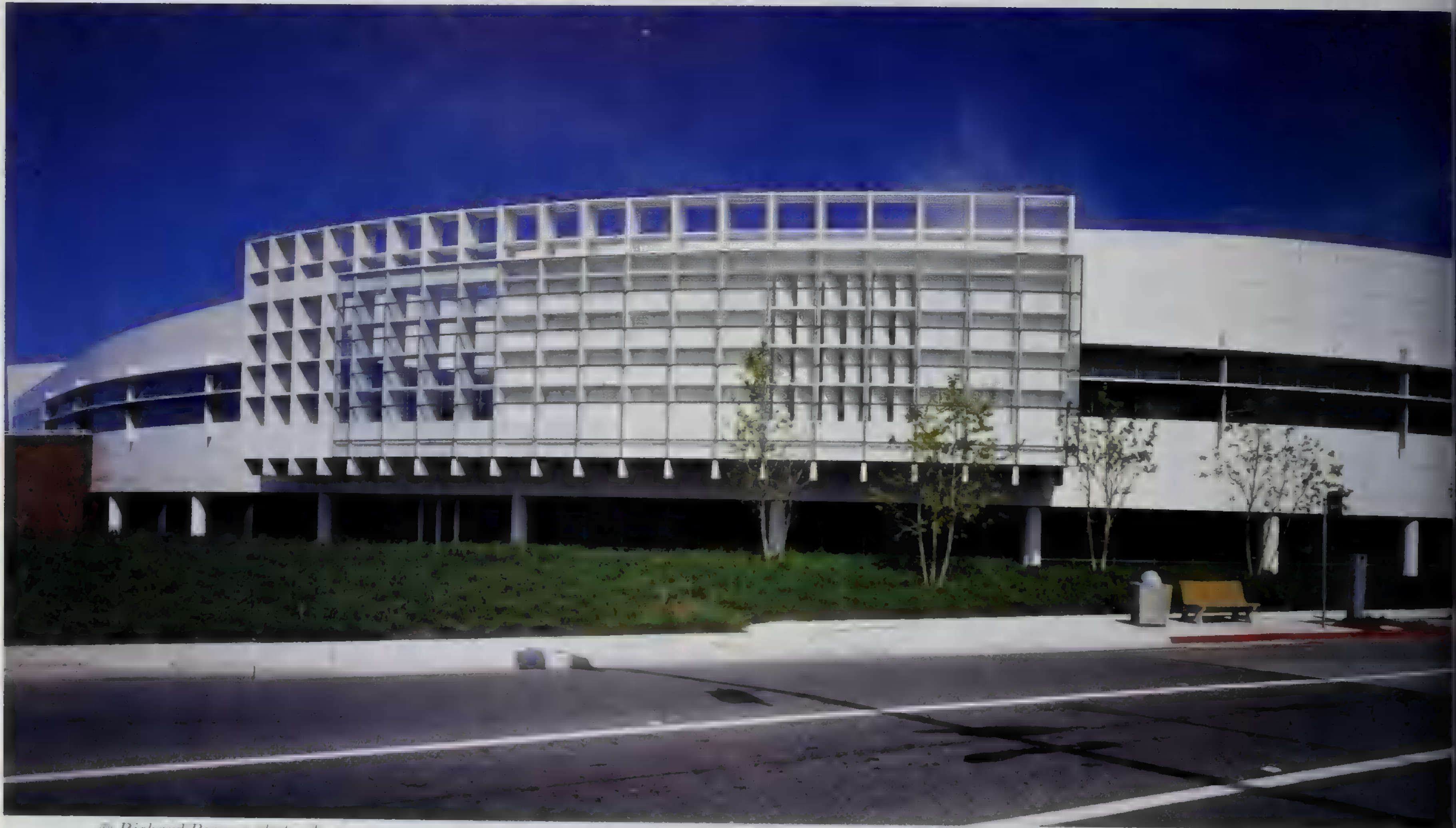


1. *Entry site*
2. *Shoreline campus*
3. *North Charleston Studio Campus*

"The building mediates between the pedestrian and the car," says architect Charles Dilworth. Seen from the freeway, the Gateway Building is a curving arc (below and opposite, top). Close-by, it presents an overscaled grid, which protects conference roo against the sun and the noise the freeway. An overscaled window of the training room an arched canopy announce t



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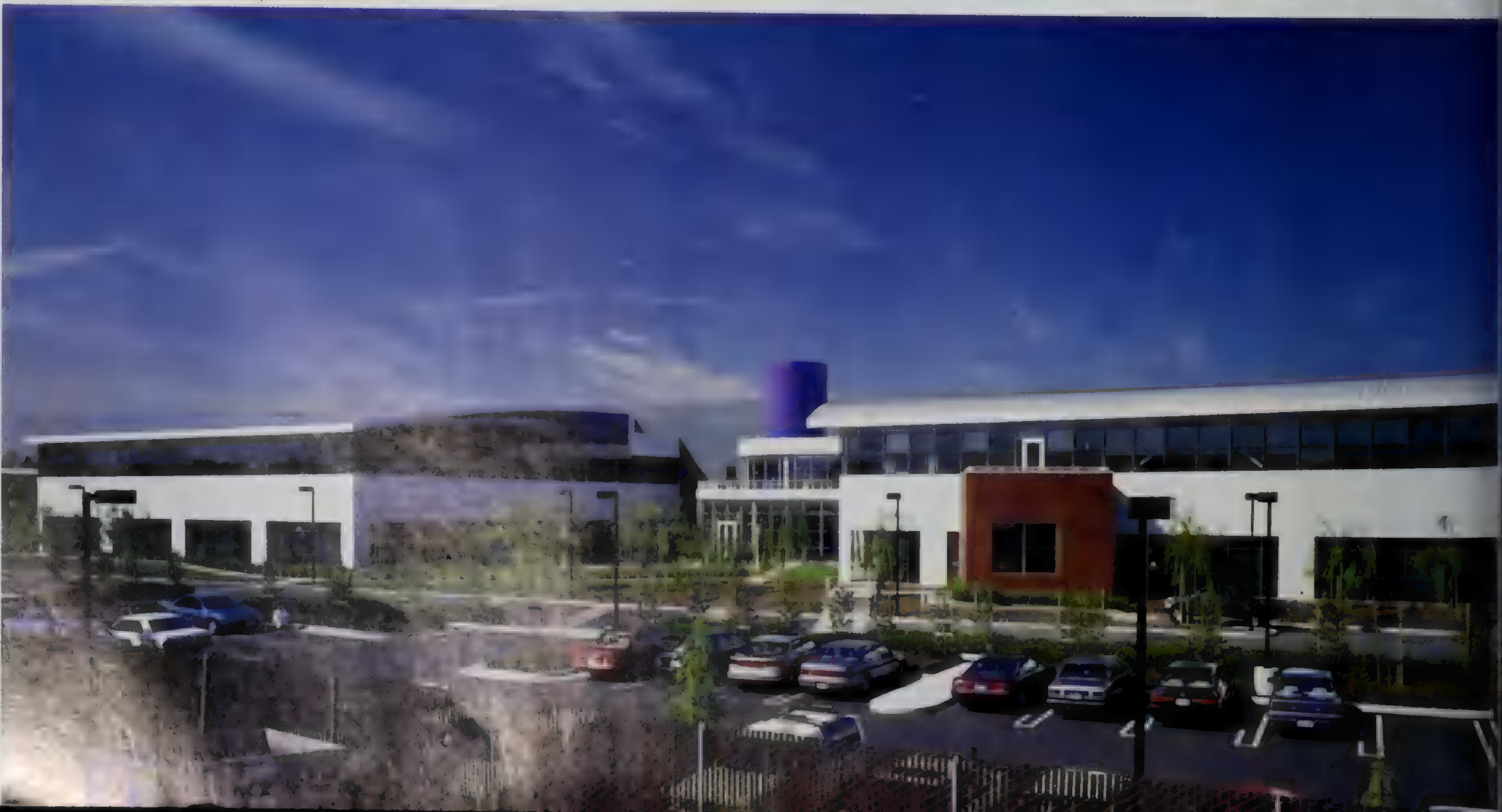
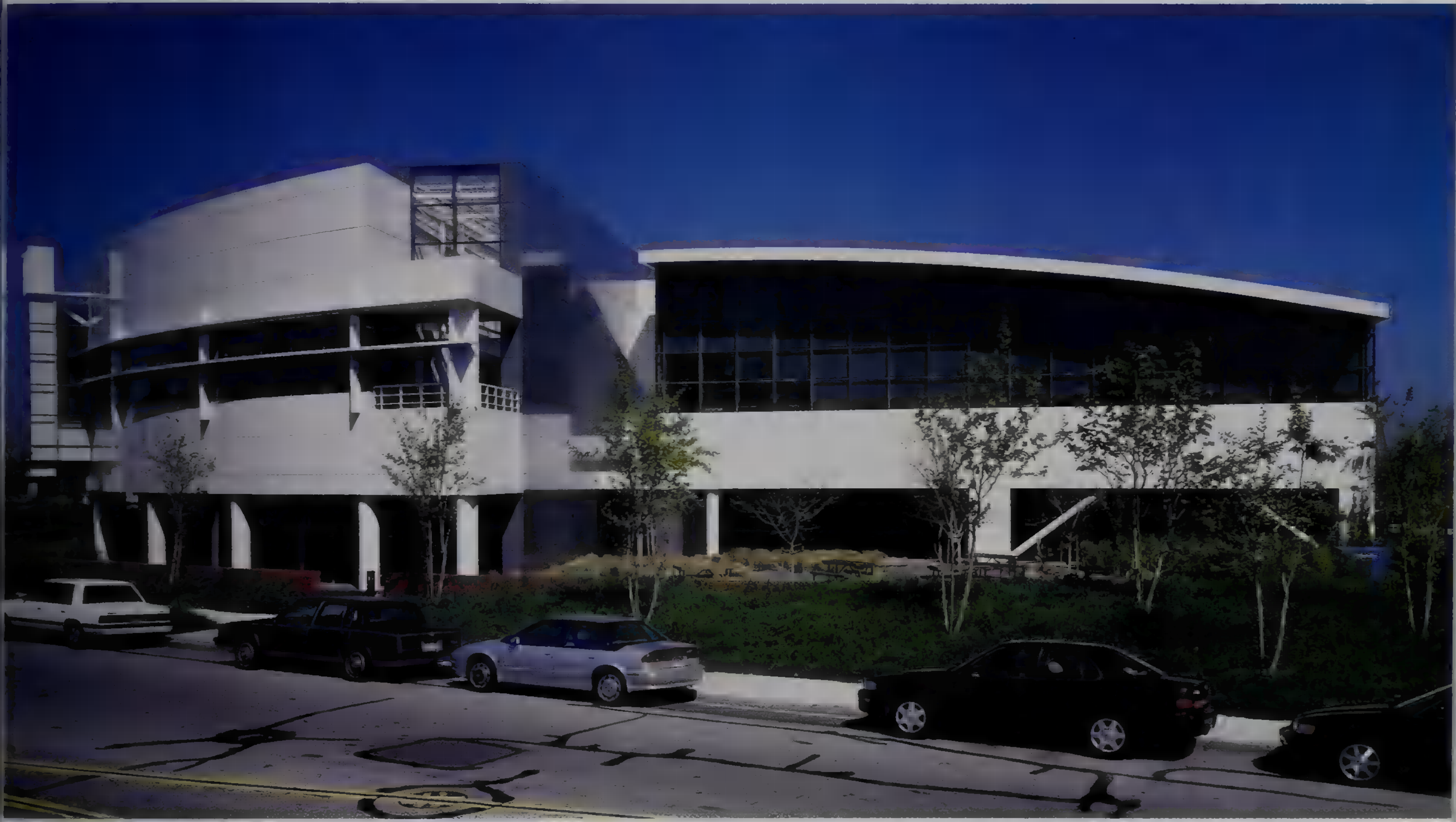
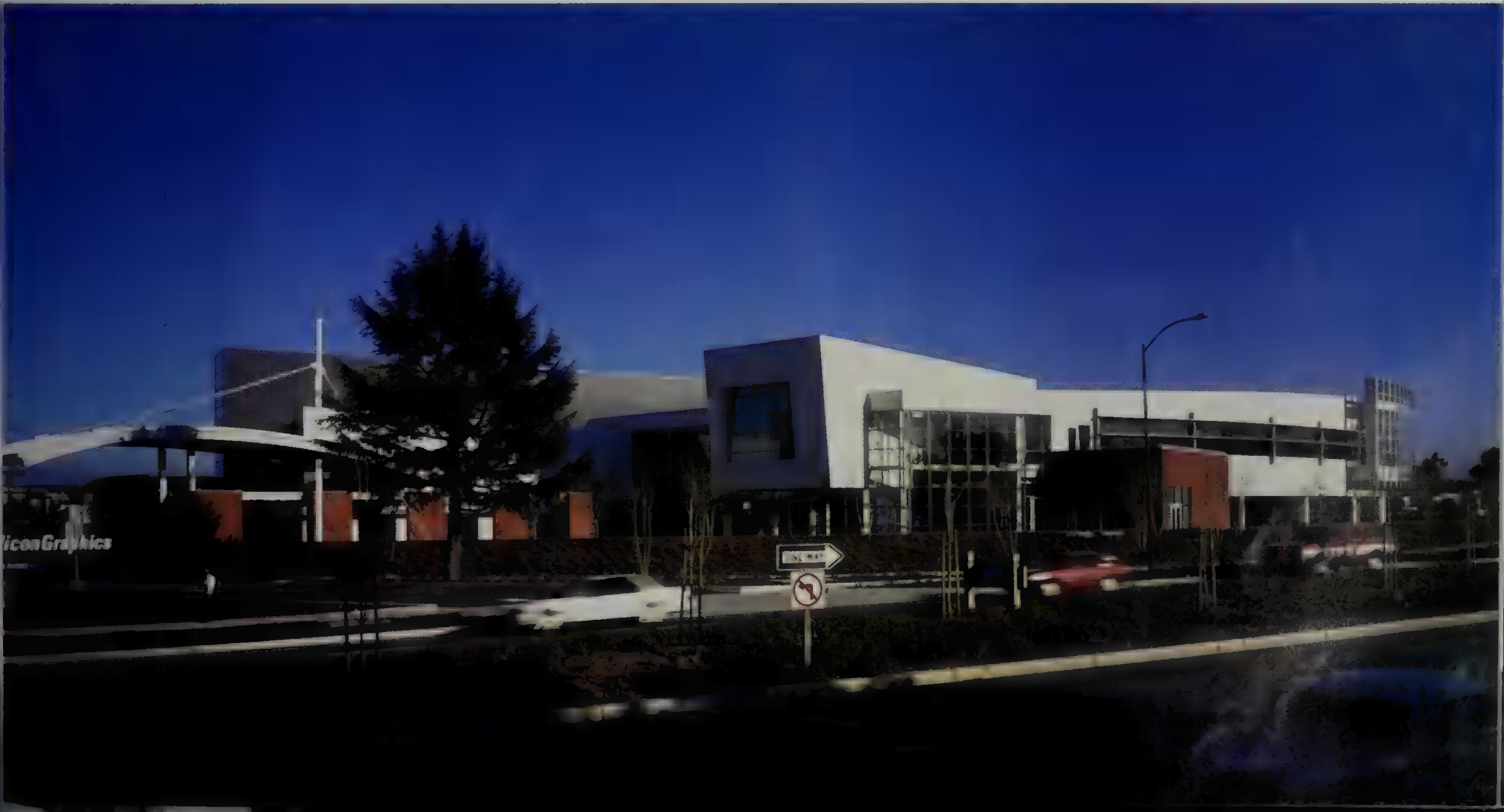
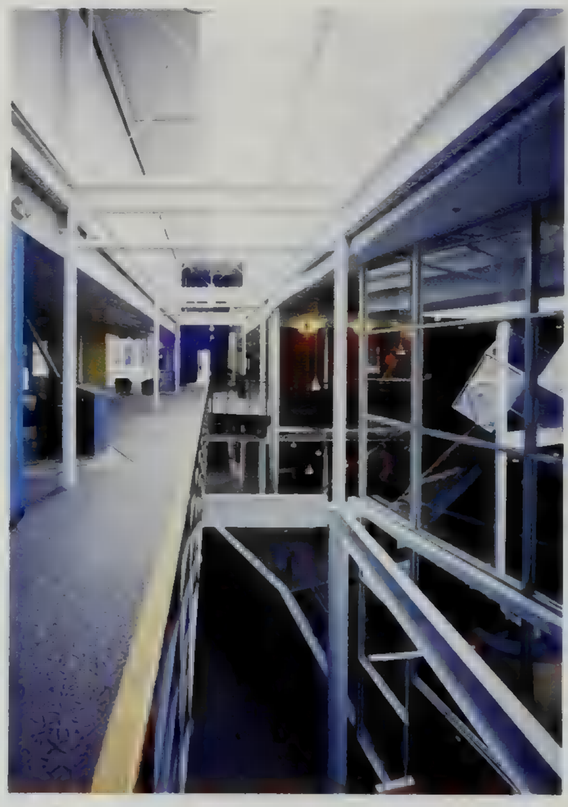


trance (below). A low brick ll encloses a garden and alls the original Silicon aphics campus several blocks ay. On the rear of the building ttom) the rotated geometries twist off of the city grid to create a small courtyard next to the cafeteria (opposite bottom). The grid of the facade system is an inexpensive unit wall system .



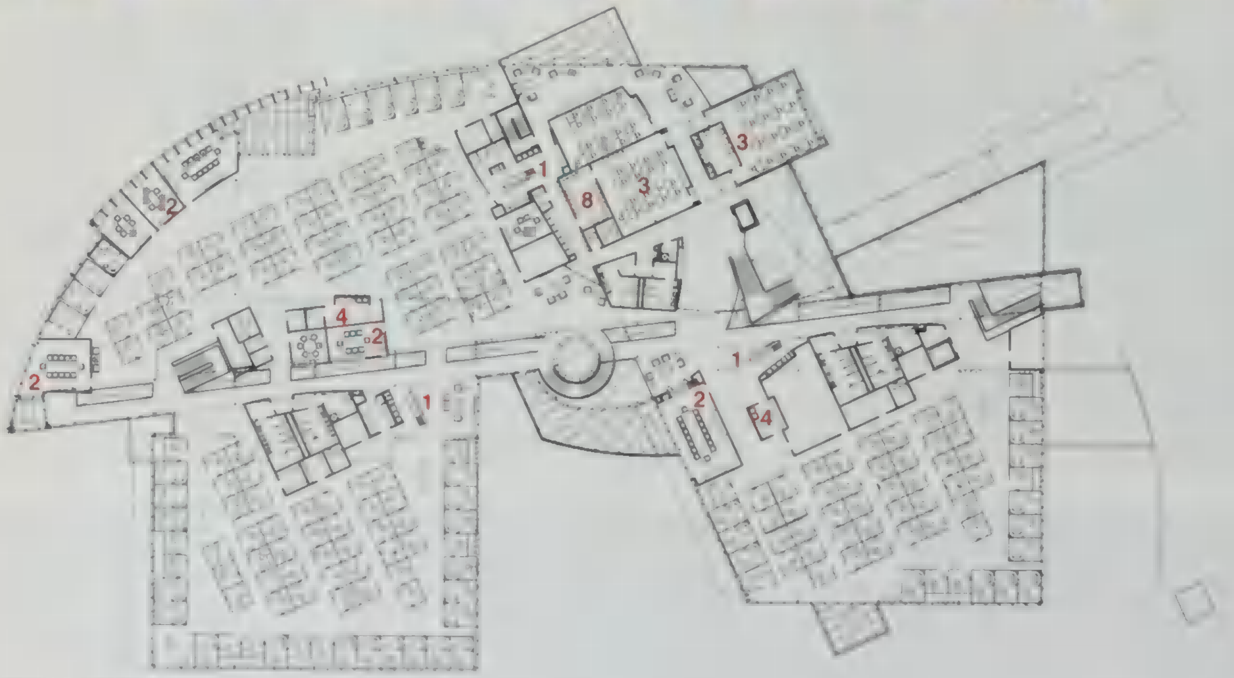
Richard Barnes photos



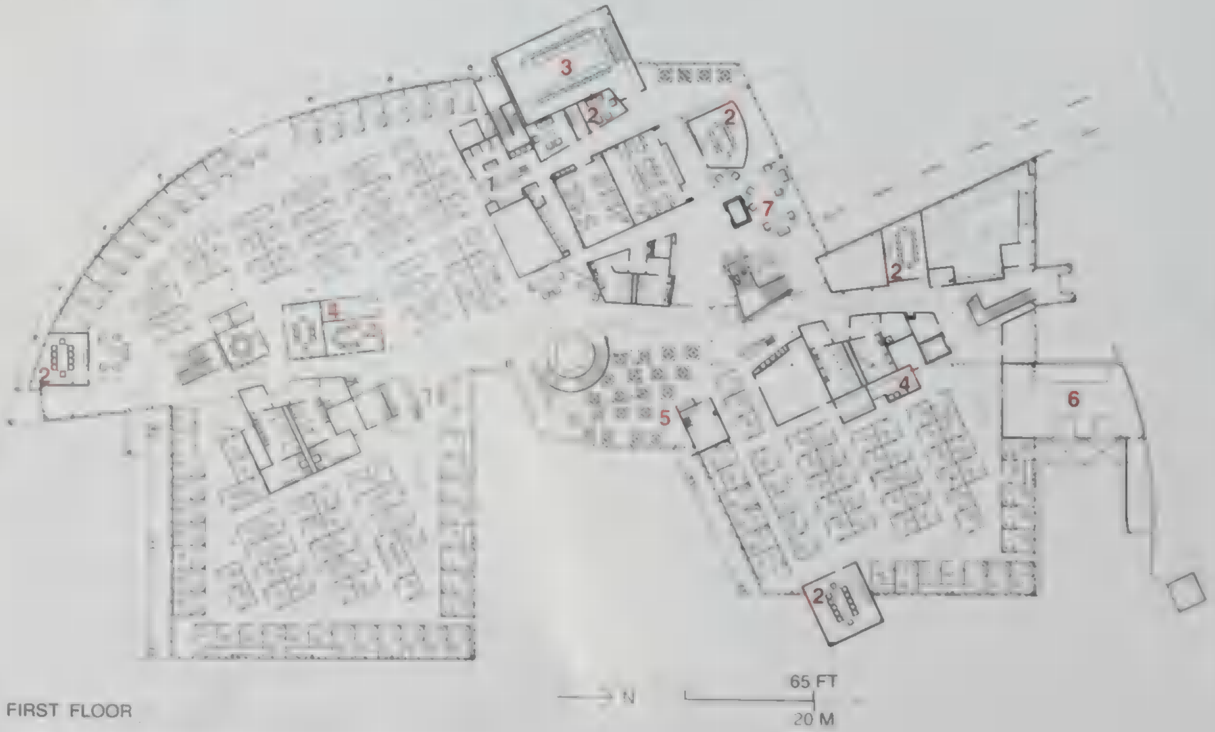


Office "neighborhoods" contain some 50 work stations, which Silicon Graphics has found is the optimal size for inter-depar mental communications. The firm's custom-designed power pole allows easy work-station changes. The spine (near left) creates a sense of overall conne tion. The public face of the building continues to the lobby area, where a glass wall (opposite) marks the security zone.

Credits:
Silicon Graphics Entry Site
Mountain View, California
Owner: *Silicon Graphics Real Estate—Ray Johnson, Don Young, Robert Reuter, David Kalb, Janice Coelho, Heidi Thomas, client deign team*
Architect: *Studios Architecture—David Sabalvaro, Erik Sueberkrop, principals; Charle Dilworth, senior designer; Kell Haegglund, Clifford Wong, Jeffery Benningfield, Michael O'Callahan, Bill Cooperman, Philip Luo, Elliot Freed, Jeffre Curry, Anders Hench, Colin Walker, Chase Fenton, Benjami Aranda, project team*
Engineers: *GFDS Engineers (structural); The Mark Thomas Company (civil); Encon (mechanical, plumbing design/build); Ackerman Engineers (electrical design/build)*
Consultants: *The SWA Group (landscape); Lumenworks (lighting)*

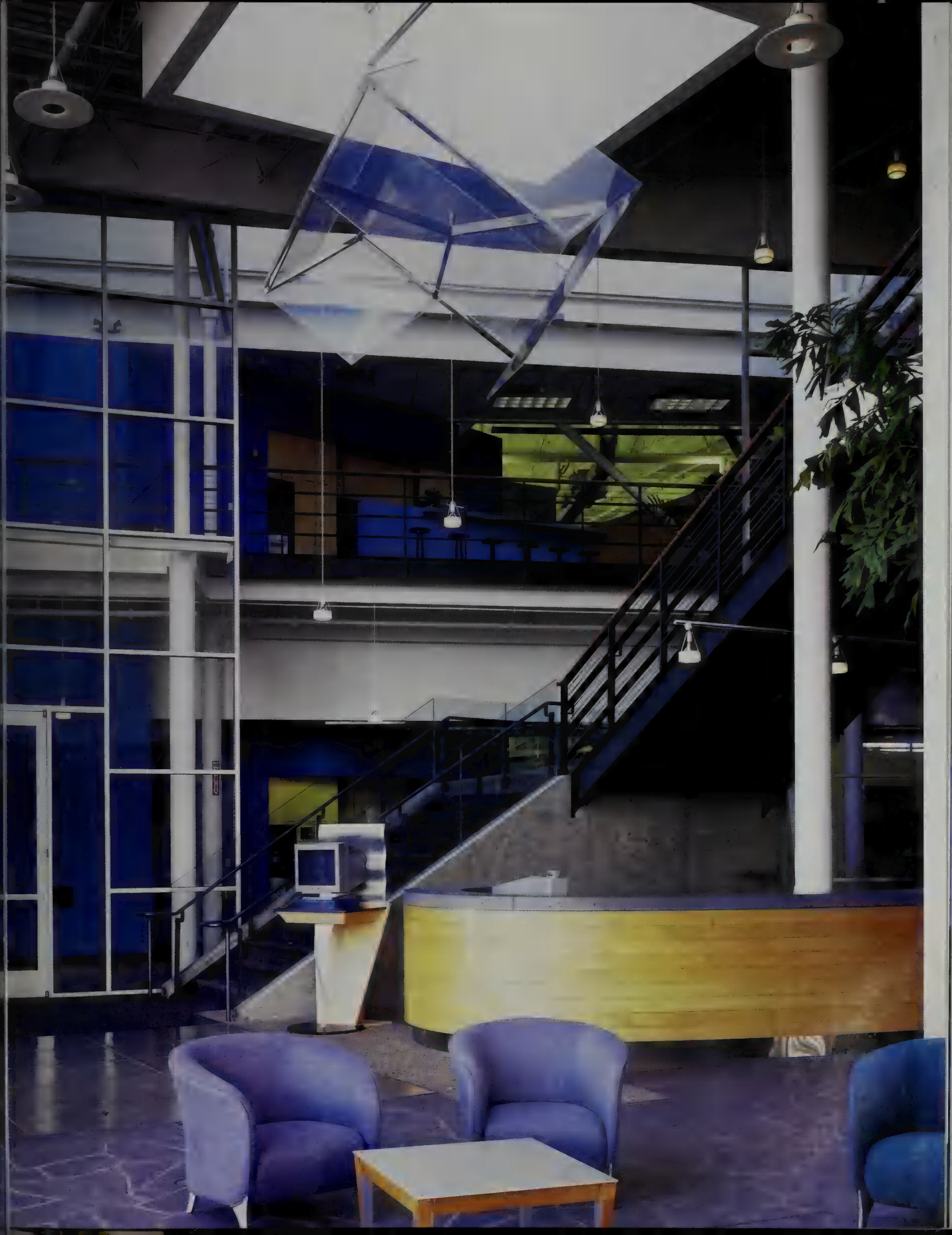


SECOND FLOOR



FIRST FLOOR

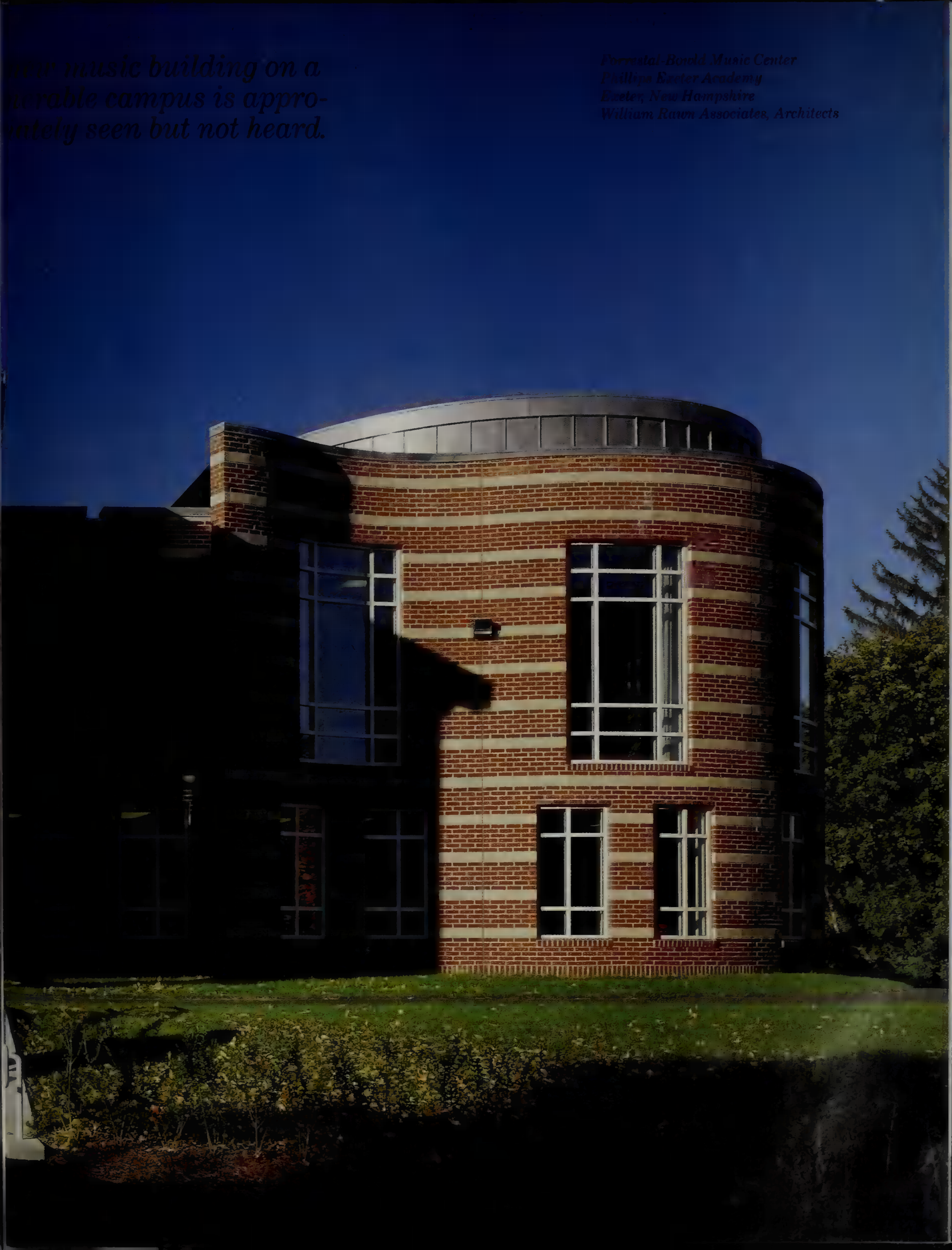
1. *Coffee area*
2. *Conference*
3. *Training*
4. *Copy area*
5. *Cafe*
6. *Loading*
7. *Lobby*
8. *Machine room*



Fitting Harmony

new music building on a
erable campus is appro-
ately seen but not heard.

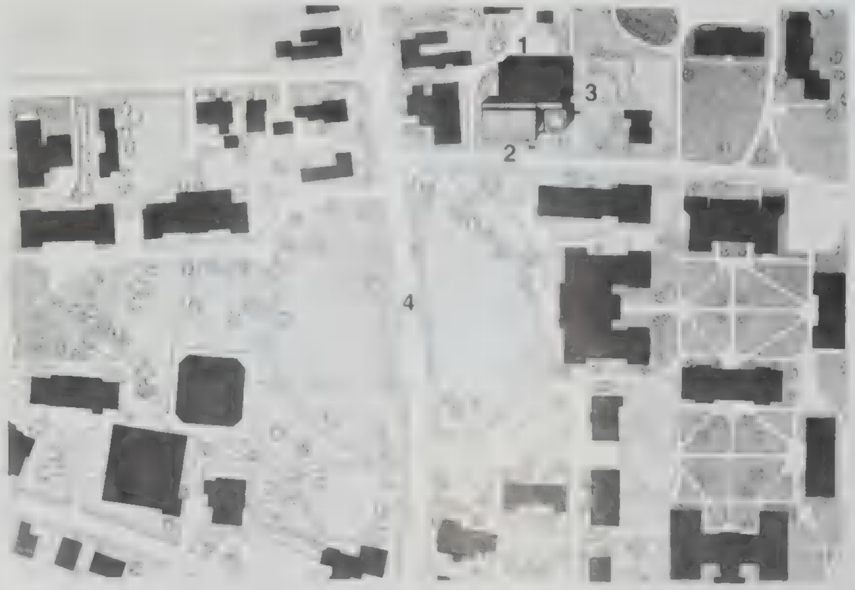
Forrestal-Bowld Music Center
Phillips Exeter Academy
Exeter, New Hampshire
William Rawn Associates, Architects



Founded in 1781—the last year of the American Revolution—Phillips Exeter Academy has long been one of New England's most prestigious preparatory schools. Its mainly Georgian buildings are arranged around quadrangles meant to encourage a sense of community (site plan, below). Architect William Rawn Associates has chosen to reinforce this pattern with the campus's newest building, the Forrestal-Bowld Music Center. It closes a gap at the northwest corner of the academic quadrangle with a two-story structure that matches its neighbors in scale and finish materials, but clearly expresses its own era. It also expresses the school's ethos of sensible living and rigorous engagement in learning by using plain, durable finishes and nearly square rooms that encourage focused attention, participatory interaction, and optimal acoustics.

An addition to the 1959 Perry Music Building by Shepley Bulfinch, the Center is a deliberately modest, sensible structure designed for hard work and long use. More than 500 students, about half the school, study music—instruments range from piano to bagpipes, styles from classical to rock. For years, the department had been stretching the capacity of the Perry Building, using photocopy rooms for practice, and, in the case of the 90-piece orchestra, rehearsing in a space so acoustically inadequate that the conductor felt her hearing was being harmed. The new Center, intended for practice and rehearsal (but not performance), rectifies these deficiencies. Incorporating the old building—which was gutted and rehabbed—it increases the number of practice rooms and teaching studios and provides a chamber-group rehearsal room and, most notably, a large orchestra rehearsal hall. A major part of the design budget was devoted to acoustical studies by Lawrence Kirkegaard, who collaborated with Rawn on the Seiji Ozawa Hall at Tanglewood. "Sound needs [spatial] volume to develop fullness and richness—it has a dimension in time," says Kirkegaard, who chose specific materials for their acoustical qualities, including fiberglass panels, spray-on treatment for the ceilings, curtains, linoleum for the floor, and well-gasketed doors.

That the new structure should fit so closely the spirit of the Academy is due largely to Rawn's "intensive design process." Although Exeter is only 45 miles north of their Boston office, Rawn and project architect Alan Joslin lived for several days at the Academy, talking with faculty and students, urging students to play with massing models of the building, and generally working to understand, in Rawn's words, "the folkways and ethos" of Exeter. Music chairman Stephen Kushner has high praise for this process. "The depth and success of the result," he says, "is manifest in the building." *Nancy Levinson*



1. *Original building*
2. *New addition*
3. *Arts quadrangle*
4. *Academic quadrangle*

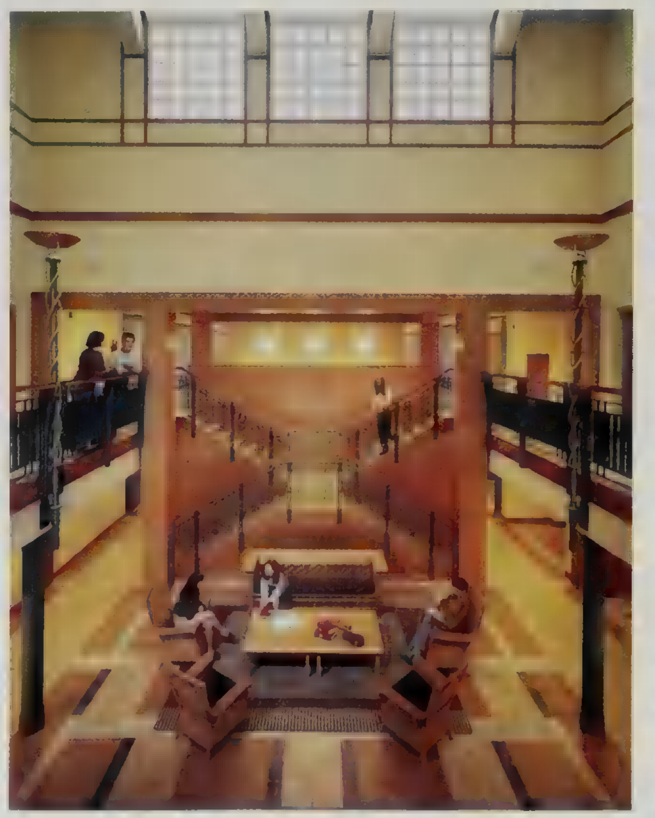
Up Close

Challenges: Design an addition to a 33-ye
old music building that fits a venerable campus and reinforces its quadrangle mas
plan. (Neighbors include Georgian-Reviva
buildings, clapboard houses, and a library designed by Louis Kahn.) Provide acousti
sophisticated spaces for music instruction, practice, and rehearsal. Reinforce an institutional culture that emphasizes a rigorous, participatory educational proces

Program: Provide music spaces to include
large orchestra-rehearsal hall, a choral-rehearsal hall, a small rehearsal/teaching space, 10 teaching studios, and 17 practice rooms. Provide offices for the department director and assistant, and faculty. Include
communal spaces.

Solutions: Adopt a fitting scale and materials, like brick cladding, cast-stone tr
and a lead-coated-copper barrel roof, but w
current design expression—a rectangular facade bounding the formal academic court
and a curving facade leading to an anticipat
less-formal arts quadrangle. Arrange new interior spaces around large central community spaces (or "courts"), which look
out onto the campus green. Renovate the existing building to create practice rooms,
choral-rehearsal hall, and another interior "court," this one less public and more intimate.

Statistics: 22,250-square-foot facility—ne
steel-frame construction: 12,500 square fee
gut rehabilitation: 9,750 square feet; major rehearsal hall: 1,970 square feet; typical teaching studio: 190 square feet; typical practice room: 60 square feet. Cost: $2.8 million.



The interior "courts" (far lef and opposite) encourage a se of community.

Credits

Forrestal-Bowld Music Cent
Phillips Exeter Academy
Exeter, New Hampshire

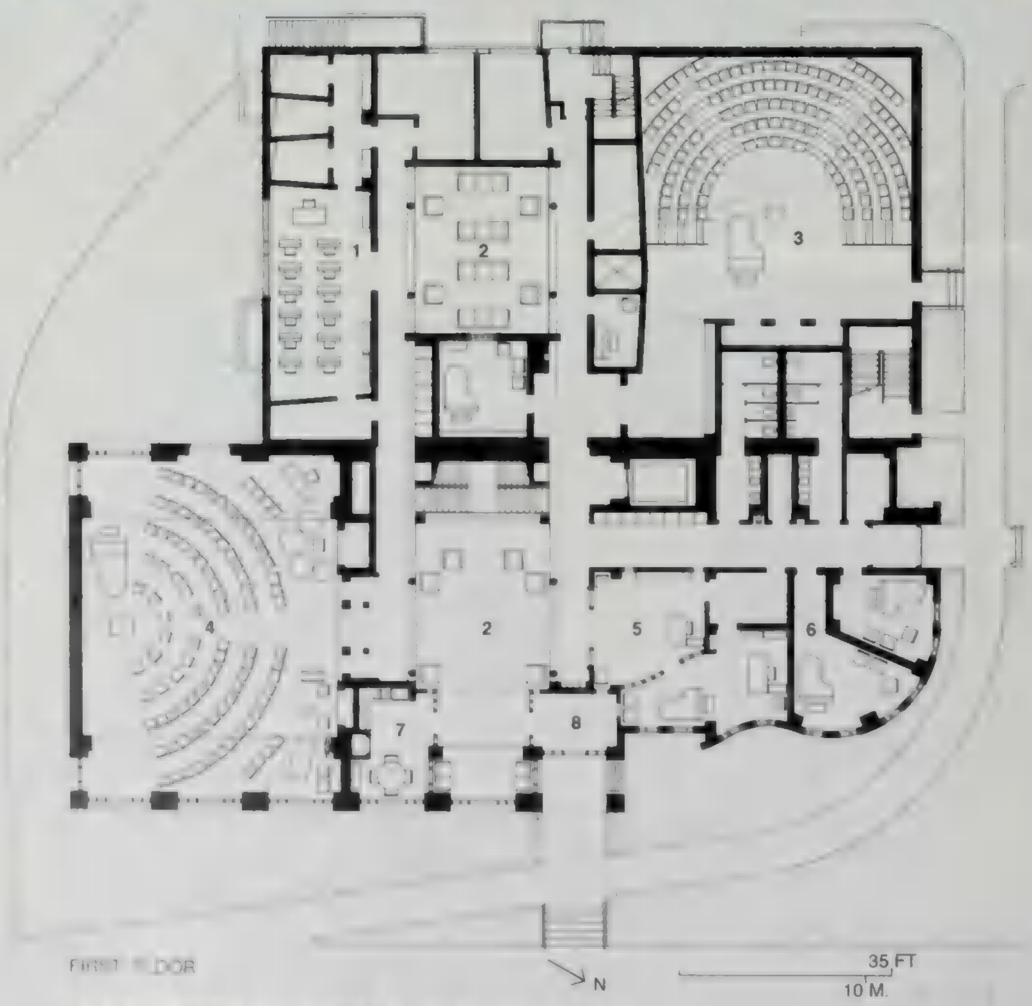
Owner: *Phillips Exeter Academy—Kendra O'Donnel principal; Lynda Beck, vice-principal; Joseph Edward Fellows, treasurer; Stephen Kushner, chairman of music department; Mimi Braver, former chairman of music department; James G. Rogers chairman of Trustee building committee*

Architect: *William Rawn Associates, Architects Inc.—William L. Rawn, principal-in-charge; Alan Jos senior associate/ project architect for design; Randy Wilmot, construction coordinator; Steven Hart, Richard Yeager, Sean Wang, Lindsay Crawford, David Yosick, Katie Hutchiso Brian LaBau, Robert Linn, Nicole Bouvier, Cliff Gayley, project team*

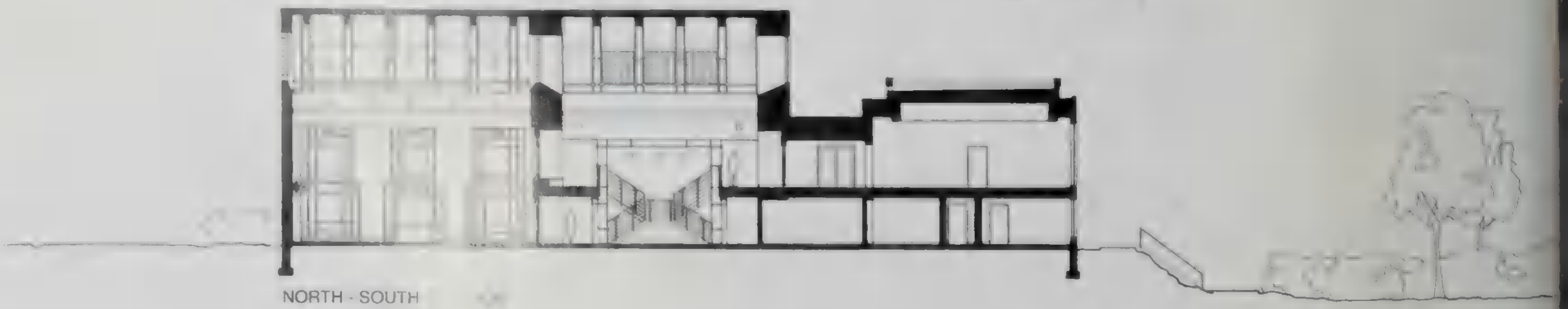
Engineers: *LeMessurier Consultants (structural); TM Consulting Engineers (mechanical, plumbing); Lott + Mason (electrical)*

Consultants: *R. Lawrence Kirkegaard & Associates (acoustics); Michael VanValkenburgh Associates, I (landscape); Ripman Lighting (lighting); Helena Korpela (furniture consultant)*

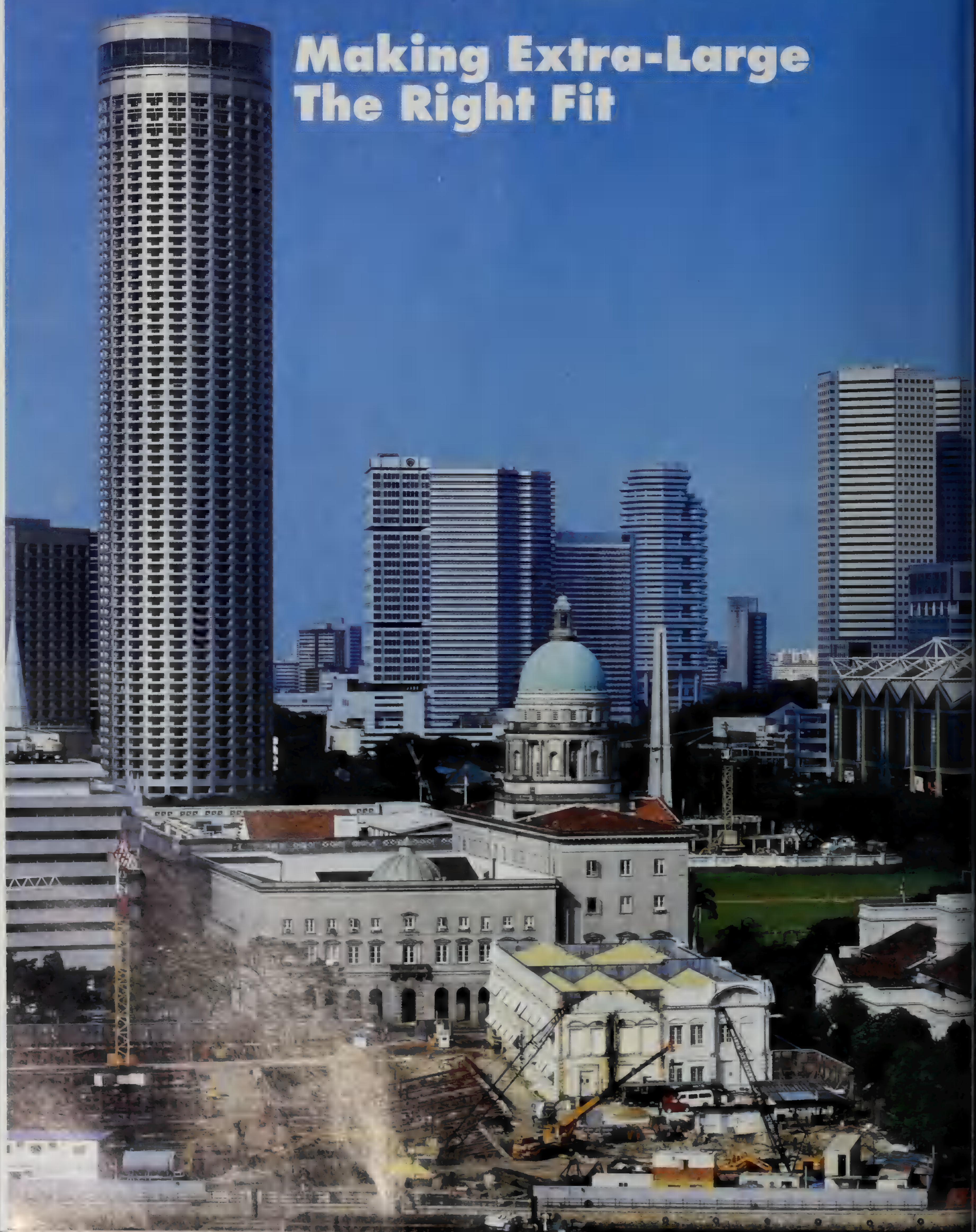
General Contractor: *Hutter Construction Company—Dav Lage, project manager*



1. Lab
2. Court
3. Chorus
4. Orchestra
5. Administration
6. Studios
7. Office
8. Vestibule

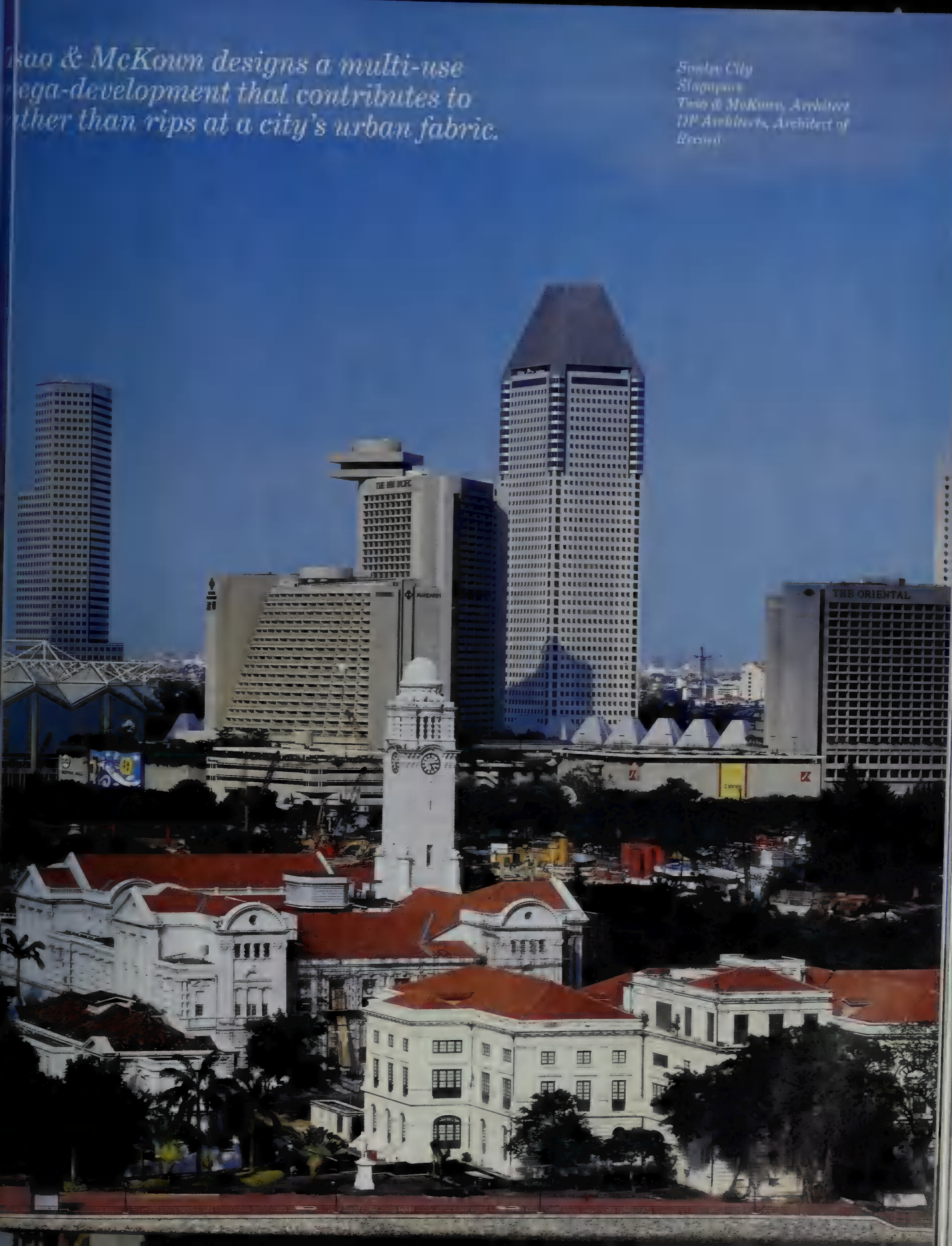


Making Extra-Large The Right Fit



Tsao & McKown designs a multi-use ega-development that contributes to ther than rips at a city's urban fabric.

Suntec City
Singapore
Tsao & McKown, Architect
DP Architects, Architect of Record



As cities throughout Asia leap from the 19th century straight into the 21st, the multi-use mega-development is fast becoming the architectural icon of the day. National leaders, multi-national developers, city officials, and even people on the street see these projects as symbols of new-found prosperity and power. Images of skyscrapers and convention centers find their way into commemorative stamps and TV commercials promoting the new Asia. The challenge facing architects designing these giant complexes is making them work as more than just three-dimensional logos: making them integrated pieces of cities undergoing radical transformation and creating designs that speak to both traditional cultures and an emerging sensibility based on equal parts consumerism, national pride, and faith in technology.

Suntec City—comprising a 1.08-million-square-foot convention center, four 45-story office towers, an 18-story tower, 800,000-square-feet of retail and entertainment space, and parking for 3,200 cars—tackles these challenges head-on and, to a remarkable degree, wins. Although the faceted tall towers and the blocky shorter tower are too reserved in form to truly enliven the Singapore skyline and have been criticized for the amount of sunlight they block, Suntec City works better and better the closer you get to it. As designed by Tsao & McKown (with offices in New York City and Singapore), and the Singapore firm DP Architects, the Suntec buildings wrap around a circular plaza that promises to be a real urban amenity when all of the restaurants and shops around it are filled. And by creating spaces between buildings that work as outdoor rooms and opening several levels of retail space to sunlight, the architects have made important strides in breaking from the internally focused mega-projects so common in Asia. "Rockefeller Center was an obvious inspiration," says Zack McKown, who spent most of the last eight years living in Singapore. "We wanted to accommodate a level of urban life not typically found in Singapore," adds Calvin Tsao, who commuted back and forth from New York City.

Privately developed by a consortium of mostly Hong Kong shareholders on a 23-acre site offered for bid in 1988 by Singapore's Urban Redevelopment Agency (URA), Suntec City connects to the rest of downtown Singapore in a variety of ways. By bringing the convention center to the edge of the site—rather than setting it back as is typically done in Asia—the architects created street walls on two important avenues, Raffles Boulevard and Nicoll Highway. As a result, the project seems very much a part of downtown, not a separate enclave. Although Tsao and McKown's initial impulse was to orient the towers to the marina, they eventually realized it was more important for the buildings and the central plaza to face the city.

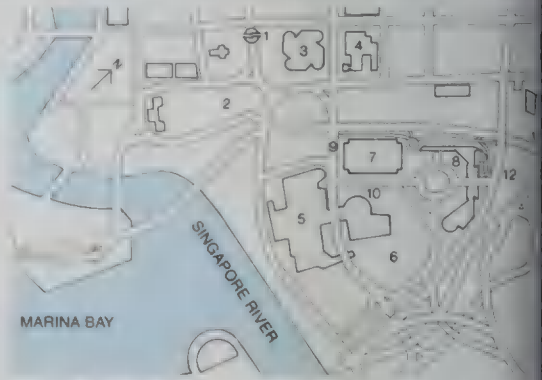
© Richard Bryant/Arcaid photos, except as noted

A digitally enhanced image (preceding pages) shows the Singapore skyline as it will look in mid-1997 when the last two buildings of Suntec City are finished. Photo (left) shows the same scene today. A central plaza (opposite) provides shaded seating at grade and restaurants facing a fountain one level below.

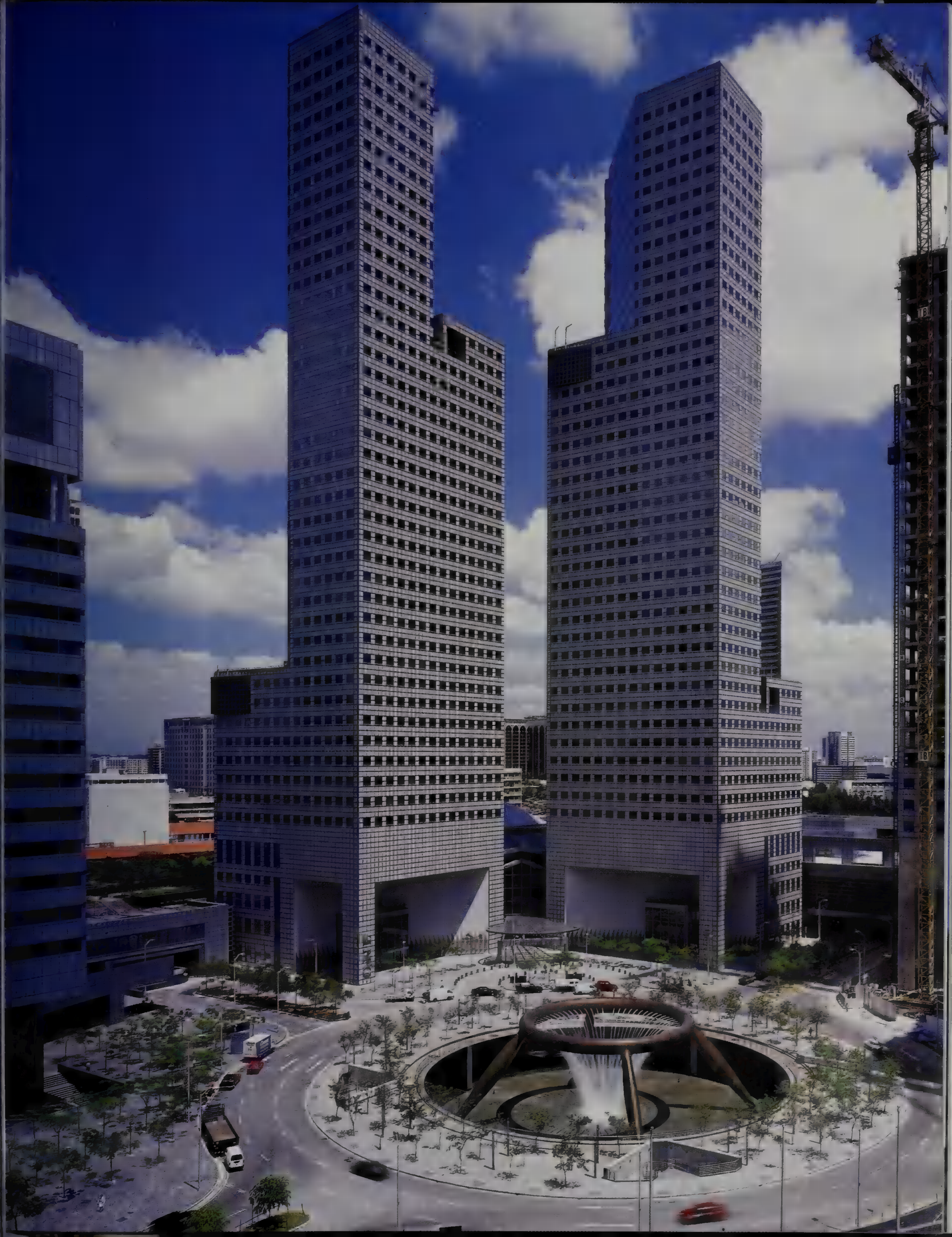
Up Close

Planning: Buildings are organized around central plaza that serves as a focal point for outdoor activities and a visual landmark. Th plaza was inspired by Indian mandalas, whic are often used for planning villages and civic structures. The master plan resembles a har with the convention center being the wrist, t five office towers the fingers, and the fountai a "golden" ring in the palm—a scheme visito easily remember. Opening the plaza to the ci and using buildings to create street walls on key boulevards, the architects gave the proj a strong urban presence.

Global Practice: With offices in New York City and Singapore and projects in the U.S., the Far East, and India, Tsao & McKown is a global firm. Both Tsao, who once had worked for I.M. Pei, and McKown, who had worked f Rafael Viñoly, had international experience before starting their firm in 1985. When it began work on Suntec City in 1988, Tsao & McKown had 10 architects in New York. Within 18 months, the firm opened a Singapore office and had 18 architects there and 3 in New York working on Suntec City. Singapore had been in a recession when the project started, but by late 1989 it was booming. So much building was underway at the time that hiring and retaining experience architects in Singapore was difficult. As a result, most of the designers in the Singapor office came from New York; a few, such as Ne Troiano, have stayed with the project for mos of its life. Though Tsao was born in Hong Kong, the firm put McKown in Singapore because he wasn't expected to follow the ofte elaborate rules of Asian etiquette and could speak more frankly. By sending partners and associates between New York and Asia and collaborating via phone, fax, and Internet, th firm tries to work as one office—a goal that was tested by the size of the Suntec City job.



1. *MRT Station*
2. *The Padang*
3. *Raffles City*
4. *Raffles City*
5. *Marina Square*
6. *Millenia Singapore*
7. *Convention Cen*
8. *Suntect City*
9. *Raffles Bouleva*
10. *Temasek Boulevard*
11. *Nicoll Highway*
12. *Rochor Road*

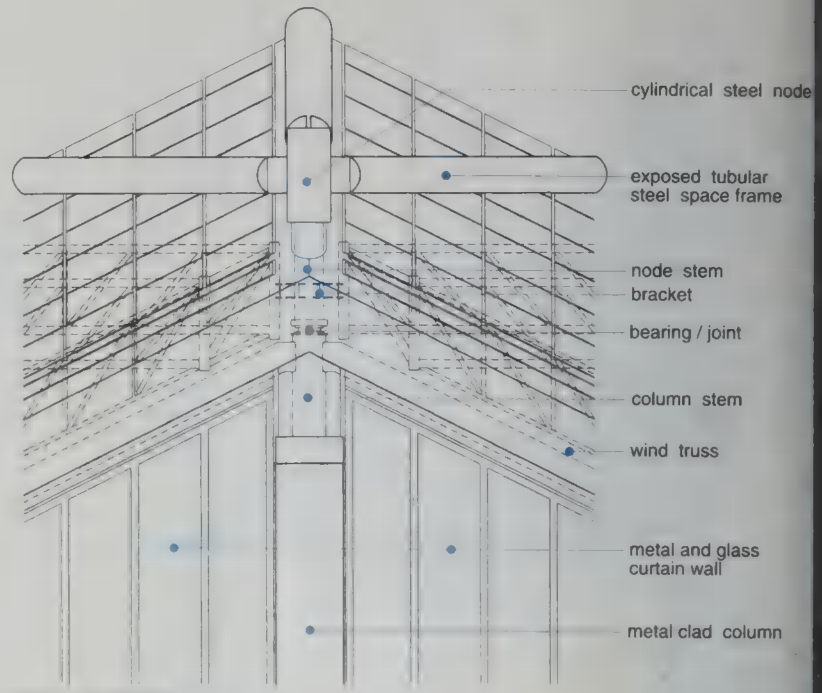

18
16

Just as important, the architects—with help from the URA—convinced the client to go to the expense of raising the convention center one level above grade and leaving the ground floor free for retail, restaurants, and public spaces. Reviving a practice set by Singapore's 19th-century founder, Sir Stamford Raffles, the architects recessed these public spaces behind a covered arcade that provides protection from rain and direct sun, and creates a continuous promenade around three sides of the convention center. In a similar gesture to the public realm and the local climate, Tsao & McKown carved out four-story-high spaces from the base of each of the towers, curving them around the fountain plaza that is the heart of the city within a city.

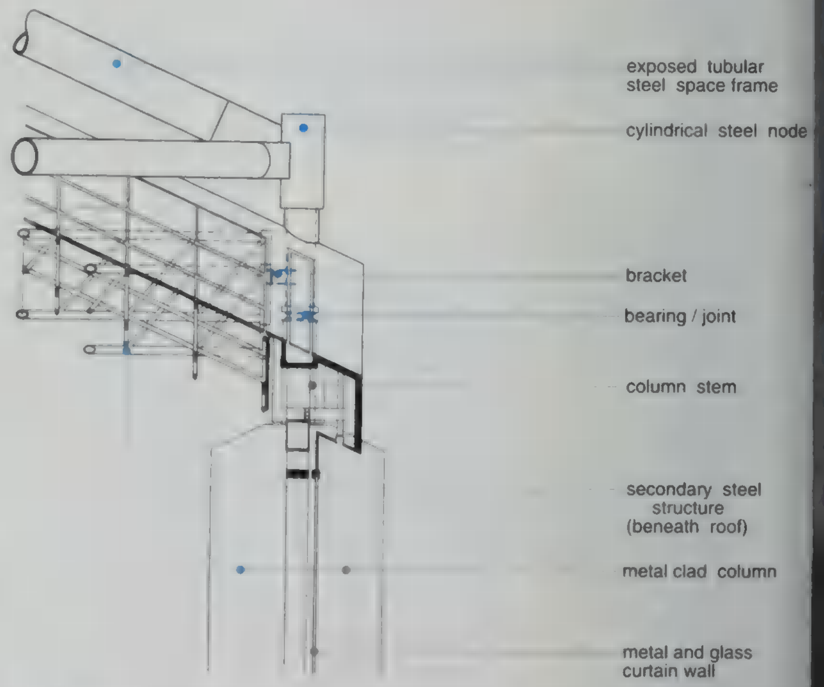
Because the convention center had to accommodate long spans and provide a 130,000-square-foot column-free convention hall on its top level, steel construction was used. Its multi-pyramid roof, which has become its identifying feature, is suspended from an external space frame and includes glass panels that bring sunlight into the hall. As is the norm in Asia, the office towers are concrete-frame structures—although massive cast-in-place transfer girders allow the corners of these buildings to be cut away to create covered patios.

While construction in southeast Asia is rarely up to world-class standards, the Suntec buildings exhibit a level of craftsmanship and detailing that is a testament to the close working relationship between the foreign and local architects and to Tsao & McKown's involvement until the end of construction. To tie the buildings together visually, all of them are clad in sea-foam-green aluminum and granite panels. Where facets are cut in the towers, stone seems to give way to an underlying metal-and-glass skin. On parts of the buildings closest to pedestrians, portions of curtain wall erupt in colors—such as saffron, curry, and jade—that refer to the local mix of Chinese, Indian, and other Asian cultures.

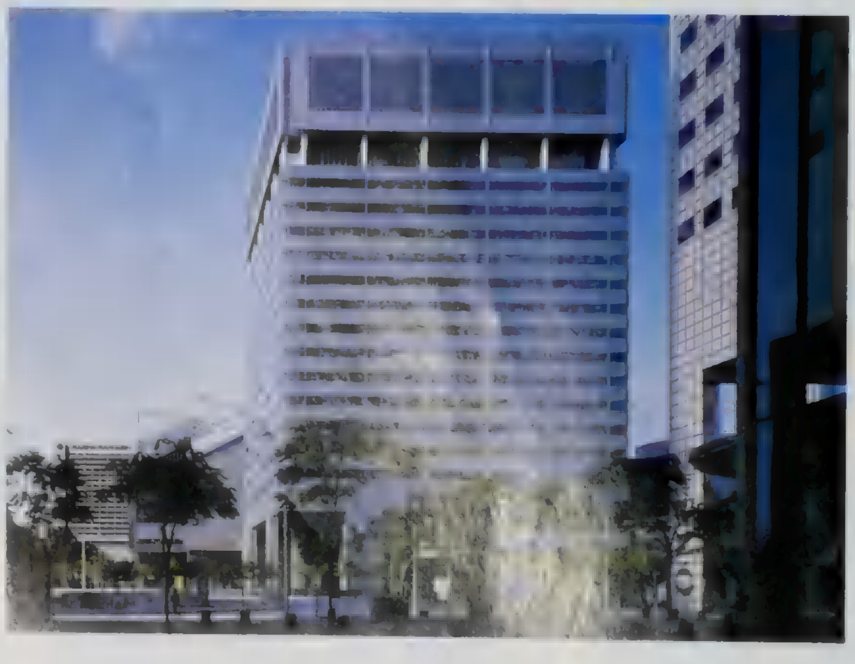
Although the last two towers and an adjacent entertainment/retail component won't be finished until next year, Suntec City is starting to come alive with office workers, shoppers, and people relaxing at restaurants. It has its own sense of place, while offering enough ties to the rest of Singapore so it never seems a world apart. All too often, Western architects working in Asia have been unable to deliver projects that rise above the get-it-done-quickly norm. But Suntec City shows that urban values and quality design don't have to be sacrificed when architects cross the Pacific; in so doing, it has raised the standard for other mega-developments here. *Clifford A. Pearson*



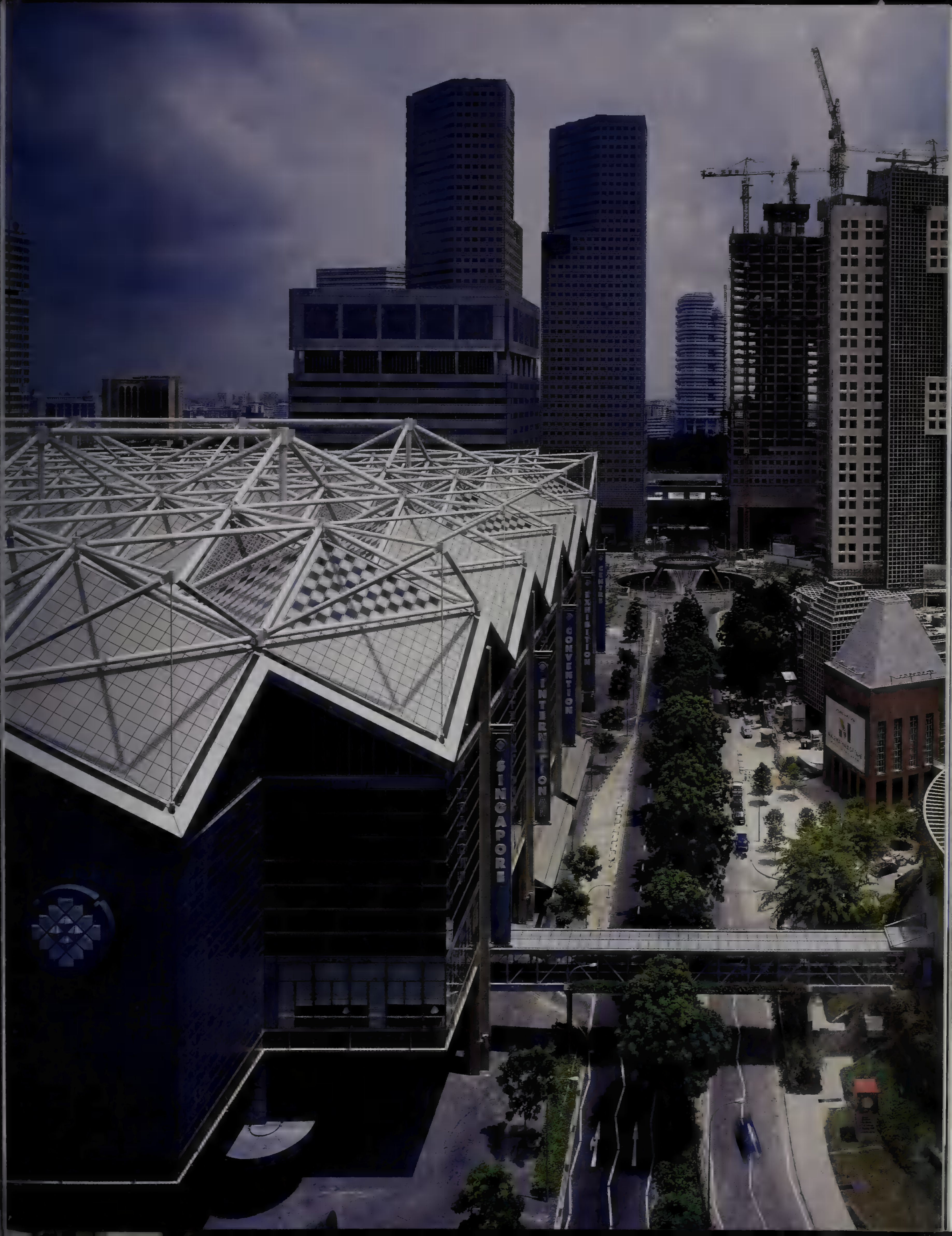
ROOF ELEVATION

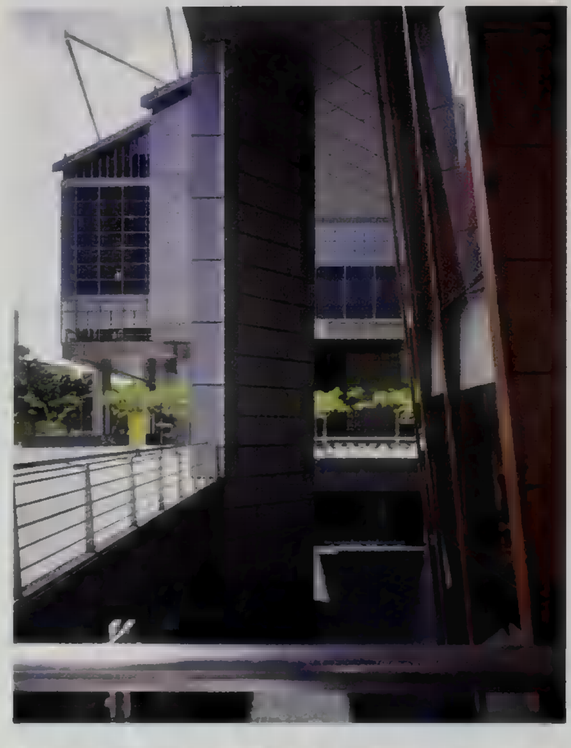

exposed tubular steel space frame
cylindrical steel node
bracket
bearing / joint
column stem
secondary steel structure (beneath roof)
metal clad column
metal and glass curtain wall

ROOF SECTION



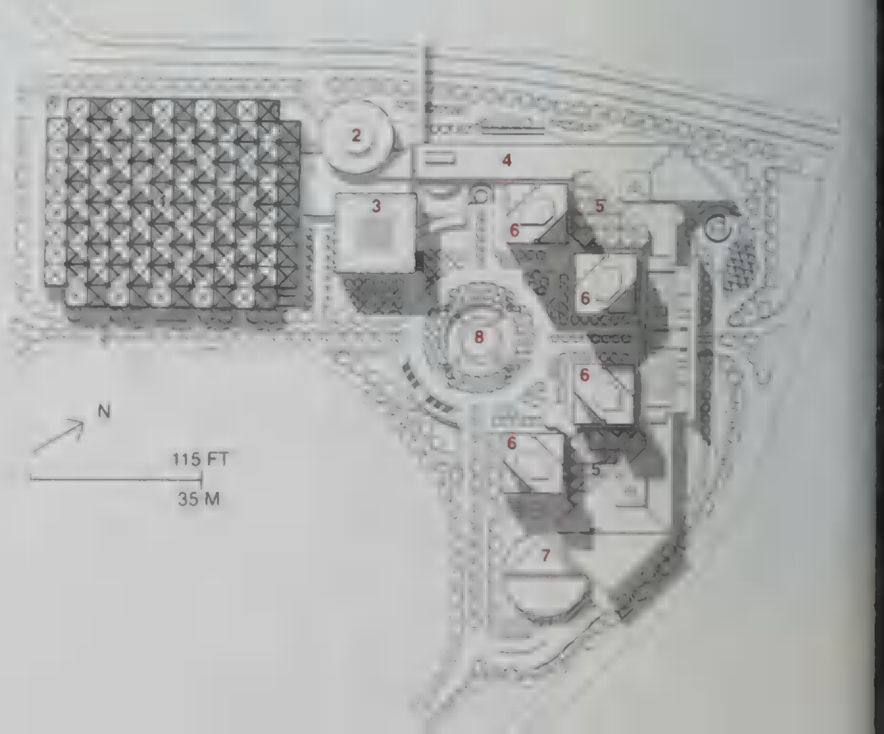
At 570 feet by 475 feet, the convention center's external space-frame roof (opposite and drawings above) is one of the largest in the world. The 18-story office tower (left) has large (28,000-sq.-ft.) floor plates to attract international tenants.


SINGAPORE
INTERNATIONAL
CONVENTION
EXHIBITION
CENTRE



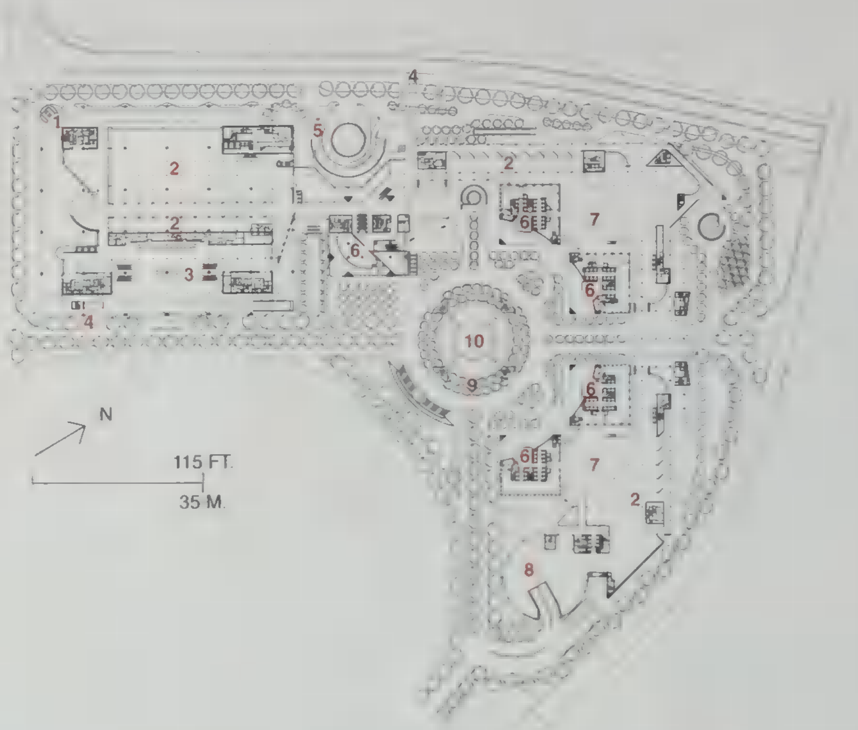
From a distance, Suntec City's aluminum and granite claddi give it a unified, monochromat presence on the skyline (openi pages). But up close and at gra level, the architecture splinters into a variety of forms and a rich range of materials and colors that engage pedestrians. The boldest colors were used o elevations facing the city and major streets (left top), while subtler hues were employed on those elevations facing the central plaza. By carving awa space under the bulk of each building, the architects created protected outdoor patios and promenades that feed into the central fountain plaza.

To entice visitors from the stre level to restaurants and shops below grade, Tsao & McKown used a variety of architectural devices, such as cutting throug to lower levels (top right) and using skylights to offer views below (lower right). A canted glass wall and a reflecting pool call attention to a restaurant i the lower level of the 18-story office tower (opposite). The the of transparency and penetratio is continued in the lobby of this same tower (lower left).



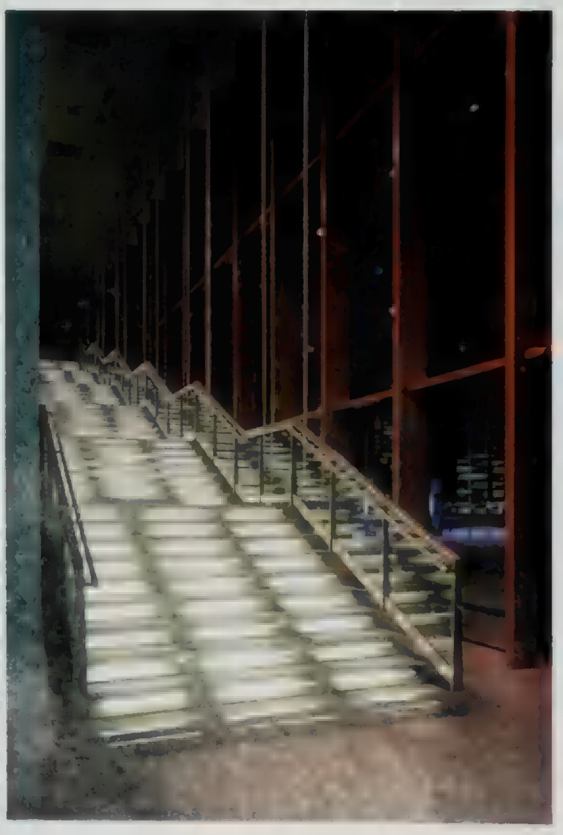
1. Convention center
2. Vehicular ramp
3. Office tower (18 stories)
4. Retail
5. Retail atrium
6. Office tower (45 stories)
*7. Retail/
entertainment*
8. Central plaza

1. Pedestrian underpass
2. Retail
3. Convention center lobby
4. Pedestrian bridge
5. Vehicular ramp
6. Office tower lobby
7. Retail atrium
8. Retail/entertainment atrium
9. Fountain terrace
10. Fountain



A multi-story atrium on the lo
southeast side of the conventio
center and a mostly transpare
wall on this elevation (opposit
help orient visitors. The urba
setting demanded a stacked arrangement for the conventio
center with, from top down—a
130,000-square-foot column-fr
convention hall; a 130,000-square-foot exhibition hall tha
can be divided into three space
two floors of meeting rooms, a
ballroom, and an auditorium;
and a ground floor with regist
tion and retail.

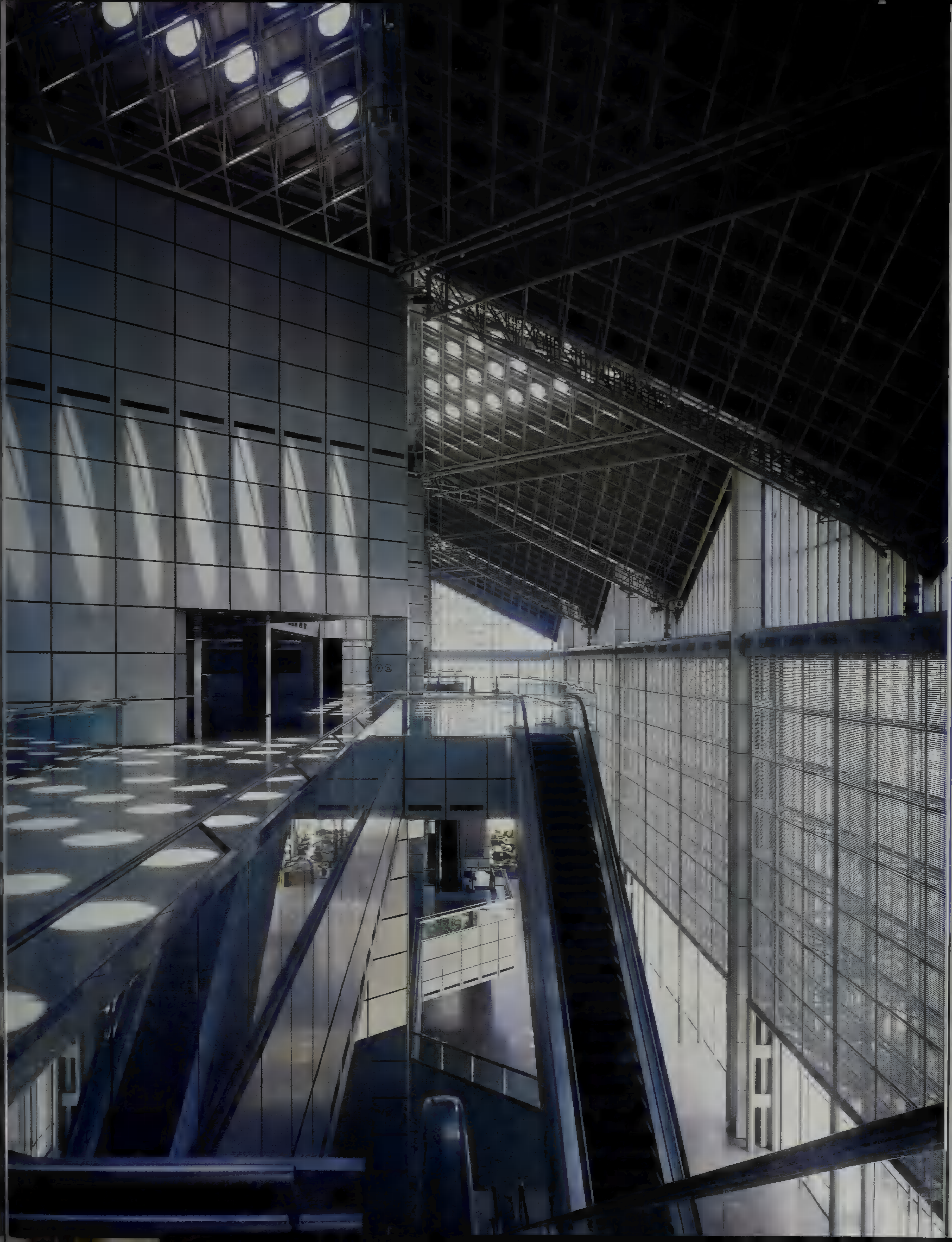
The lobby and registration hal
features a floor mosaic of Buck
minster Fuller's Dymaxion M
(bottom left). A grand stair, on
of the few architectural reques
of the client, is a composition i
glass and light (far left).



© Tim Griffith/Esto

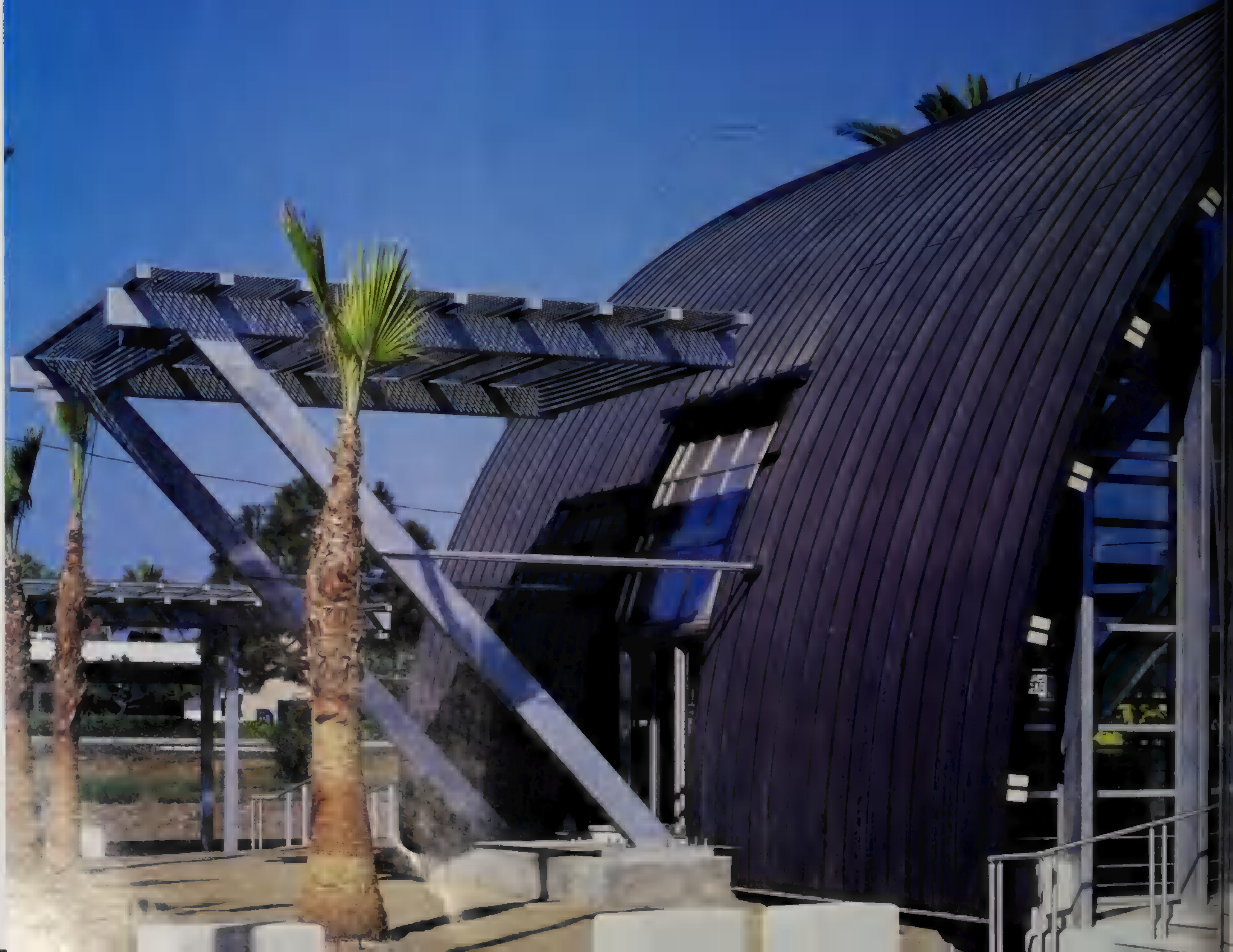
© Tim Griffith/Esto

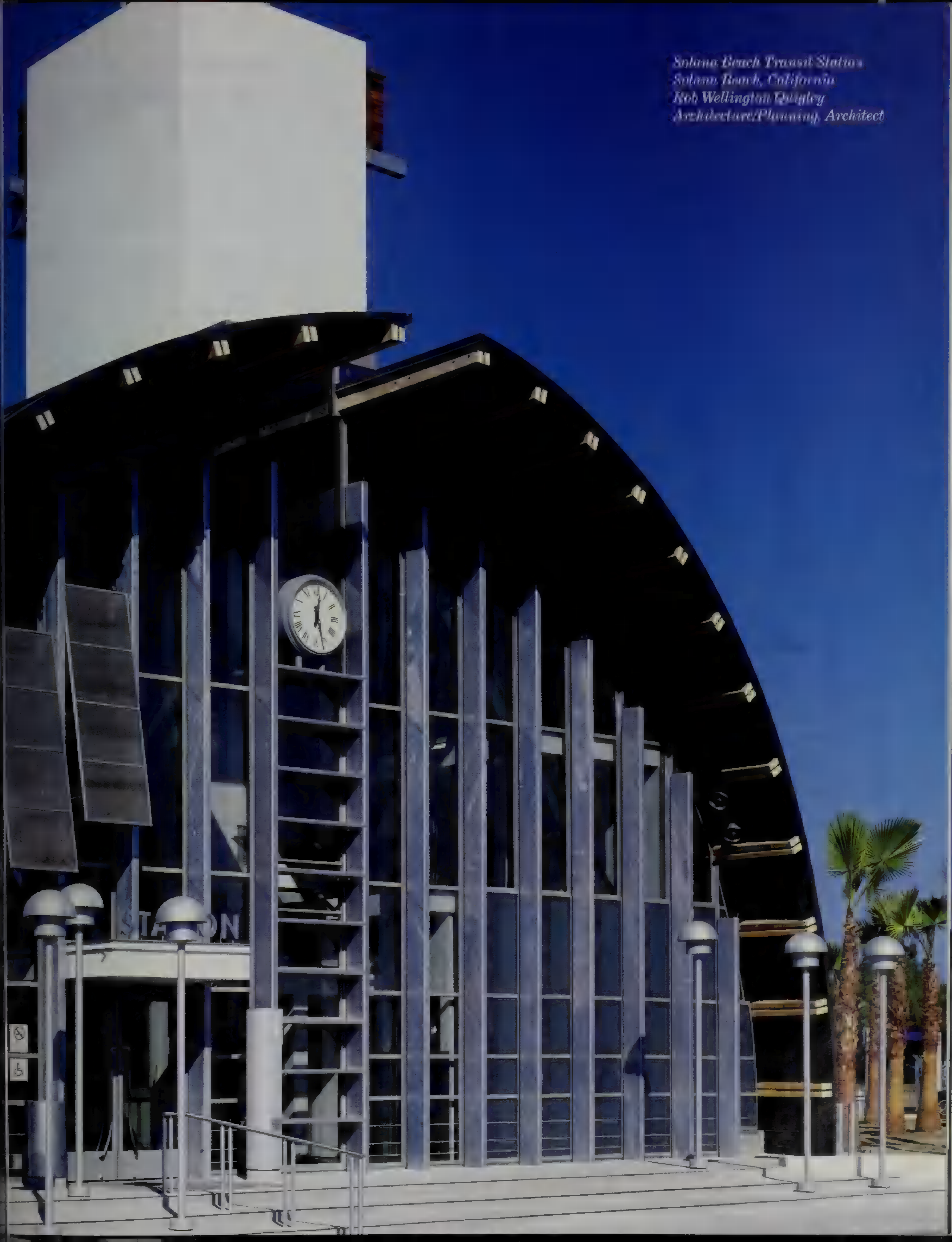
Credits
Suntec City
Singapore
Architect: *Tsao & McKown—Zack McKown, Calvin Tsao, partners-in-charge; Andres Atela, Maureen Boyer, Lynne Bright, I-Ni Chen, Frank Czyzewski, Antonio Eraso, Barbara Farina, Melanie Francis, Werner Franz, John Garrahan, Carolyn Hunter, Ka*
Iwamoto, Charles Kessler, Ted Krueger, Trish McKinney, Rut
Miller, Gary Morgenroth, Stephen Norman, Stephen Rouse, Raymond Shick, Gerald
Szeto, Thomas Tow, Neil Troia
Elvis Wells, Ross Wimer, Tom Woo, project team; Wendy Lim, Lily Low, Dieter Metzger, Robe
Morris, Colette Mullan, administration
Architect of Record: *DP Architects*
Engineers: *Weiskopf and Pickworth (structural concept, convention center); Maunsell Consultants (civil/structural); Parsons Brinckerhoff (mechanical/electrical)*
Consultants: *Ng Chun Man & Associates (project); R. A. Heintges Architects (cladding); Arnold Associates (landscape concept); Clouston (landscape); Tracy Turner Design (signage)*



Making Tracks

With advice from the local community, Rob Quigley designs a train station that asserts itself.





Solana Beach Transit Station
Solana Beach, California
Rob Wellington Quigley
Architecture/Planning, Architect

Howard Roark would be horrified by Rob Wellington Quigley—not by what he produces, but how he works. While the fictional architect in Ayn Rand's 1943 novel *The Fountainhead* quickly became the symbol of architect-as-dictator, Quigley has developed a different reputation in his adopted home of San Diego: architectural conciliator. Though the shift from old-style dictatorial designer to team player mirrors a more general transition in the U.S., from a top down to participatory culture, Quigley maintains that, for him, the change has not been at the expense of architectural quality. From his vantage point, participatory design leads to stronger buildings.

Clients like Betty Laurs, Manager/Rail Services for the North County Transit District, agree. Laurs has overseen the creation of the eight train stations of a new commuter line running from San Diego to Oceanside, California, and Quigley's station, in Solana Beach, is her favorite, partly because of its daring design. "No one is lukewarm about the building," admits Laurs, "It's love or hate." Quigley was selected from a group of contenders for both the strength of his previous work and his comprehensive consensus-based approach, which extended the county's on-going program of conferring with existing community groups to include public walk-in workshops where people made lists and drawings of what they thought the project should be. (The selection was certainly not based on Quigley's fee. Laurs says the architect was "more expensive" than other candidates.)

Quigley says the process did not place him in a subservient role. Instead, it provided an outline for what his project must accomplish and rallied popular support for his eventual proposal. "Create a civic presence," says Quigley, was his main charge and to do that he looked both to the existing fabric of the town, and at what was missing. While the semi-circular steel-framed form of the station was largely inspired by Quonset huts popularized in San Diego by the increased military presence during World War II, the tower on top rose out of a need to create a civic marker in a community that lacked one.

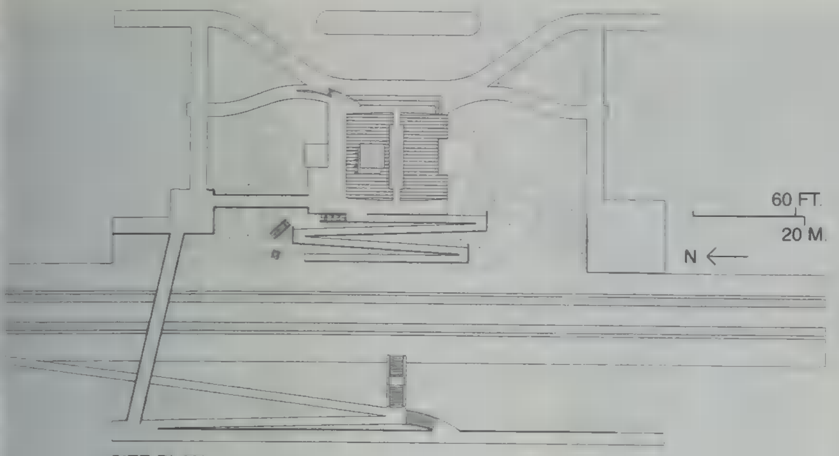
Building the nearly 70-foot tower required special approval since the town had a height limit of 35 feet. While the North San Diego County Transit Development Board, a political body, designated the site a special district and could, as Laurs points out, "build anything" on the land, the group did want the support of the city council. With Quigley arguing that "It's not my tower. It's the town's," at council sessions, the exception to the height restriction was granted. Laurs says the city council also favored copper cladding for the barrel vault over the pre-weathered zinc the architect had chosen, and the transit board overrode the council on that. "We paid one of the most renowned architects in Southern California, perhaps even the U.S., for the design," says Laurs. "It would have been presumptuous to second-guess him," a sentiment even Howard Roark would find worthy.
Karen D. Stein

Up Close

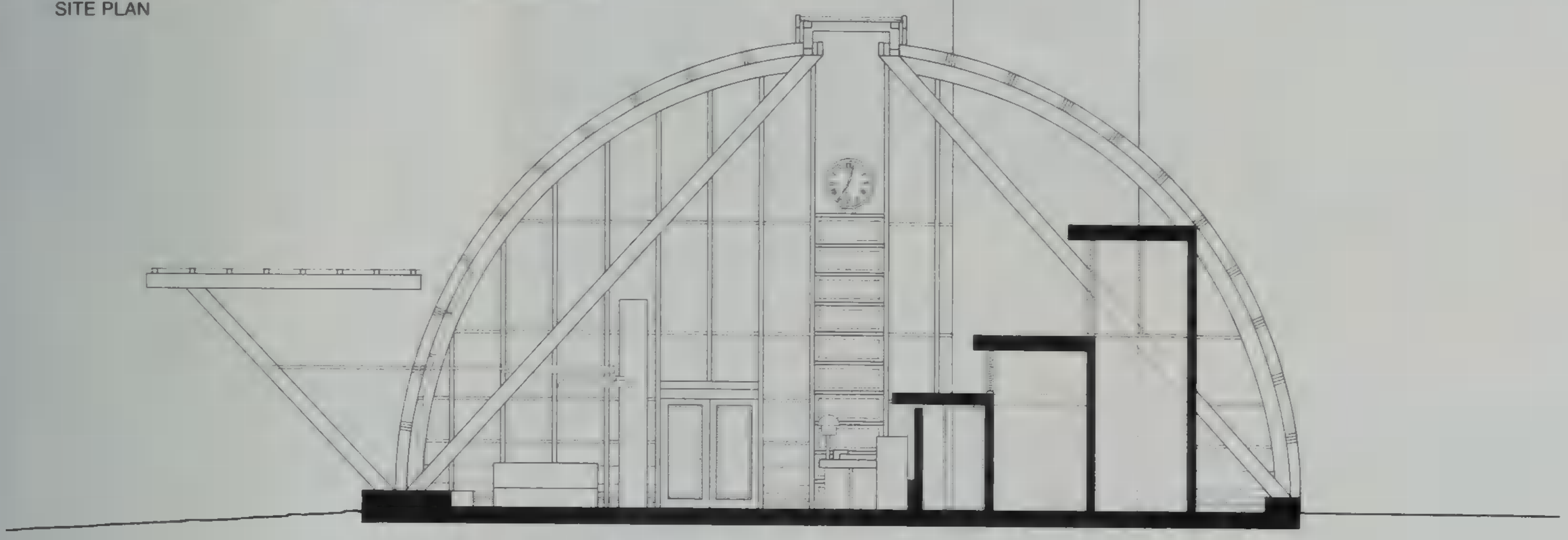
Challenges: Integrate community resident in a design process that creates a new town center and rail station for a Southern California beach community. Links with nearby Highway 101, connector to downtow San Diego, and the eventual 25-foot depression of railroad tracks to eliminate ro overpasses, were also critical to the project.

Program: A roughly $20 million, 454,000-square-foot mixed-used development on a 255-foot by 1,780-foot site, conceived as the new center of Solana Beach, to be constructe in phases over several years. The first phase, now complete on a 155-foot by 960-foot parce includes a rail station and a parking lot. Futu construction will comprise retail and restaurant space, movie theaters, low-cost housing, artists lofts, townhouse-style apartments, and a parking garage, to be located to the north of the station.

Solution: Architect Rob Quigley devised a series of public workshops for community members and developers to resolve a variety of programmatic issues, including building scale, noise-control methods, traffic patterns and appropriate architectural imagery. The community residents lobbied for the station t have a tower to symbolically convey the project's civic importance, demanding, and eventually receiving from the city council, an exception to the town's height restriction. Towers are now included in the town's code.

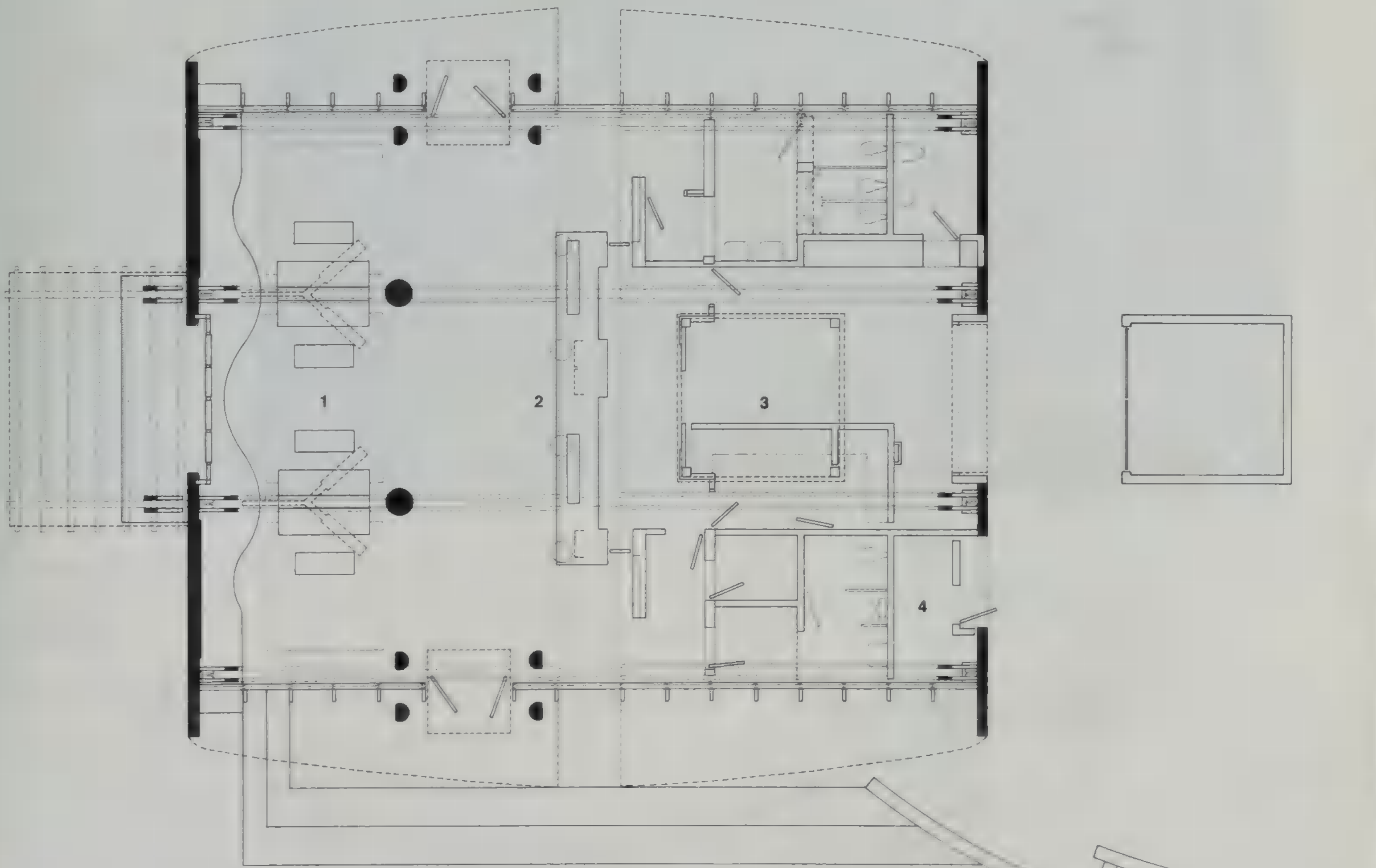


SITE PLAN



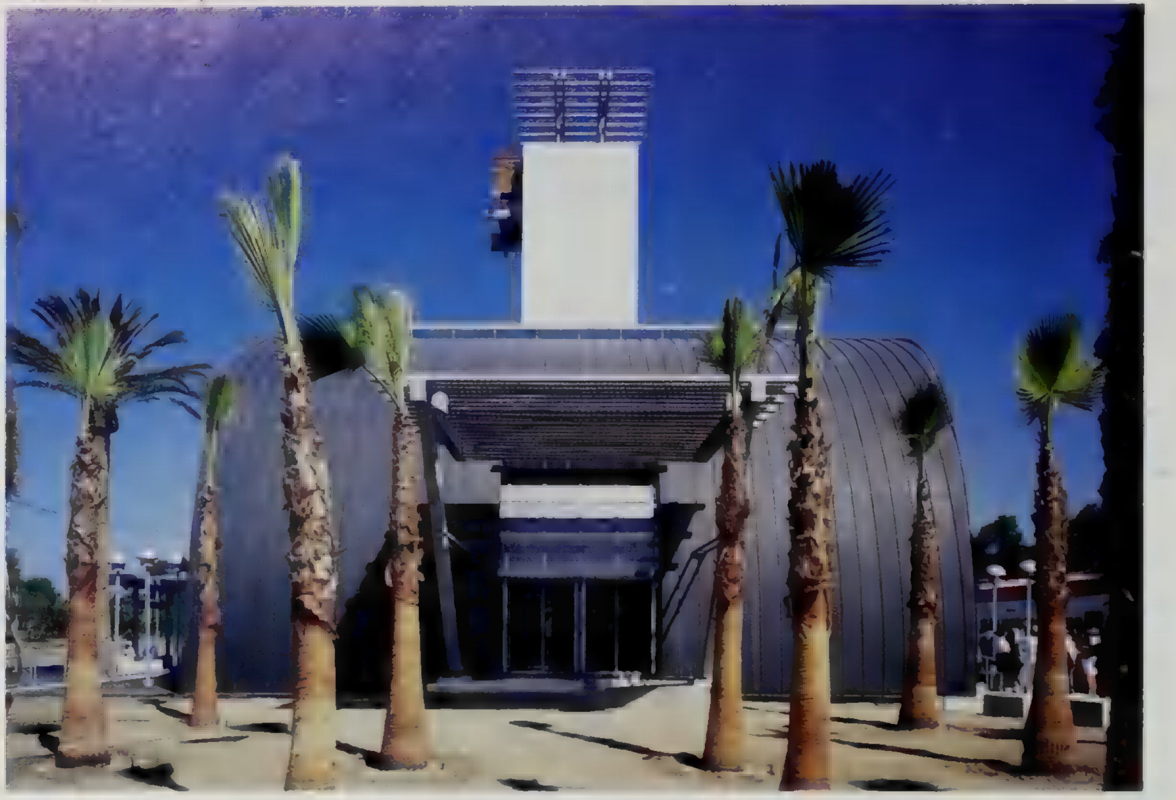
NORTH - SOUTH SECTION

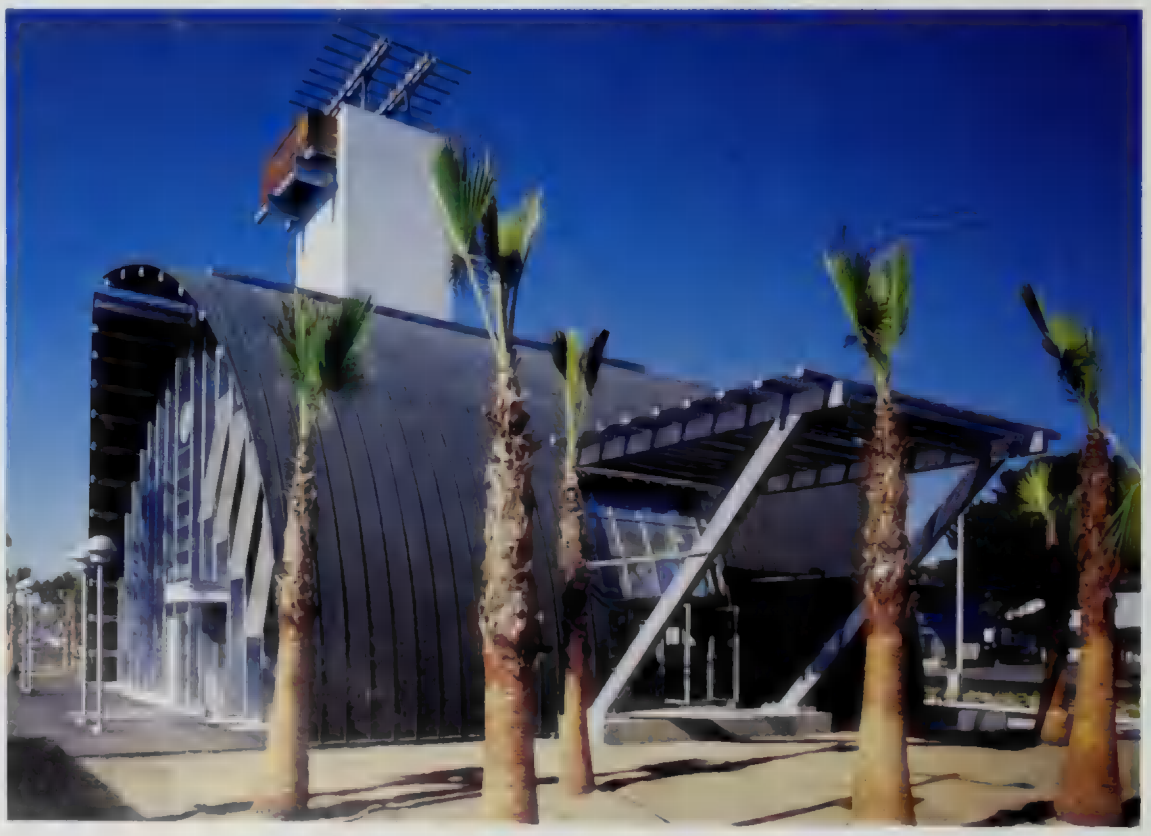
Waiting area
Ticketing
Baggage
Staff



MAIN FLOOR

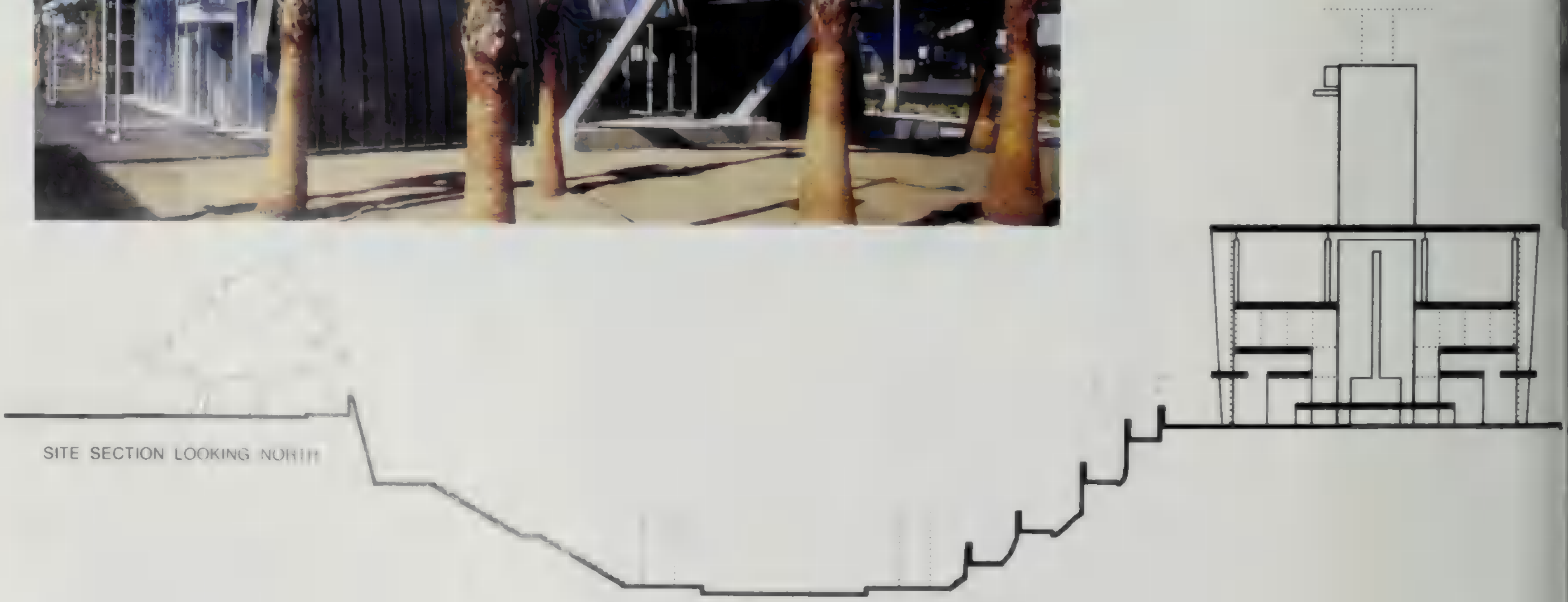
Richard Barnes photos



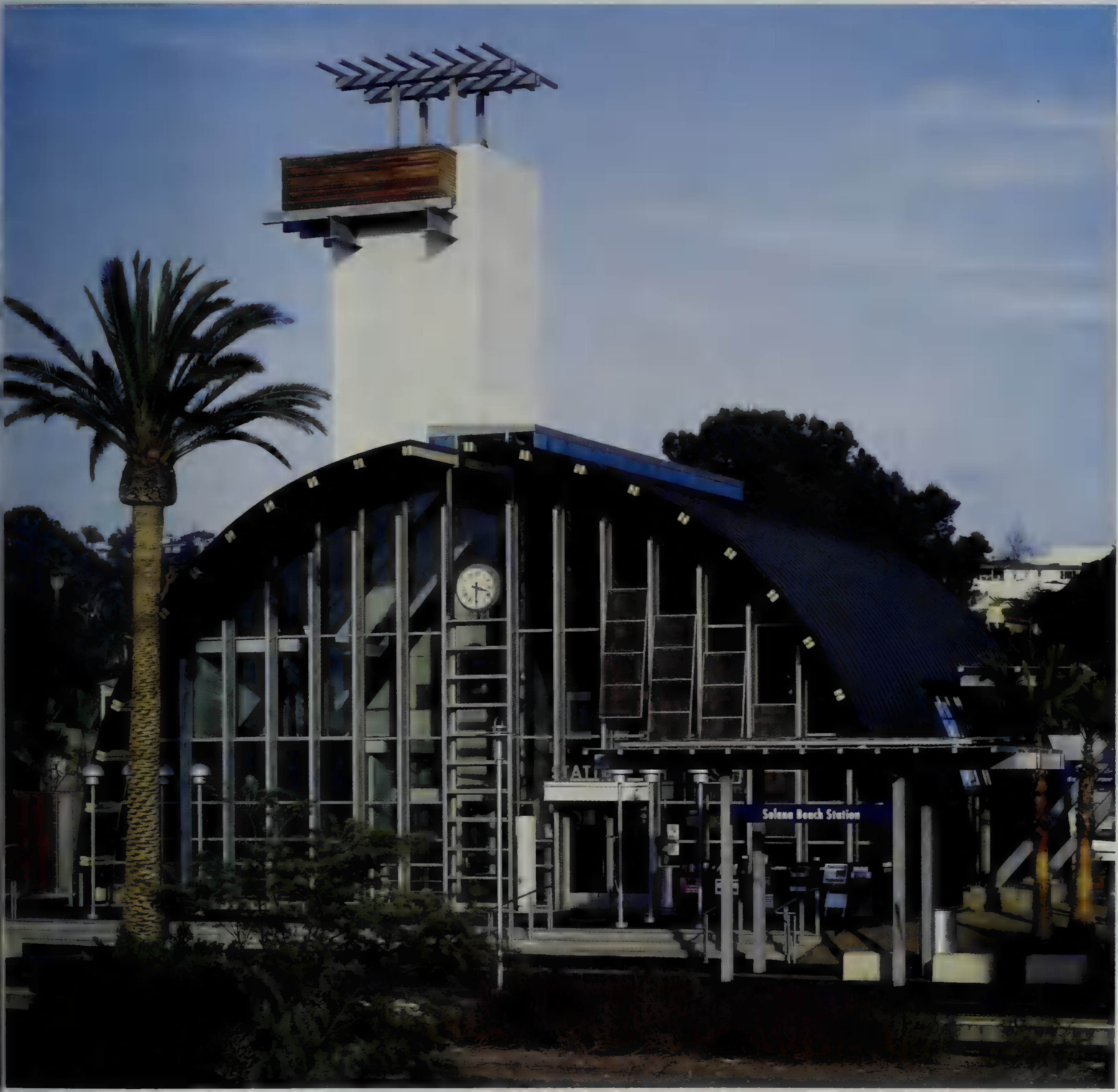


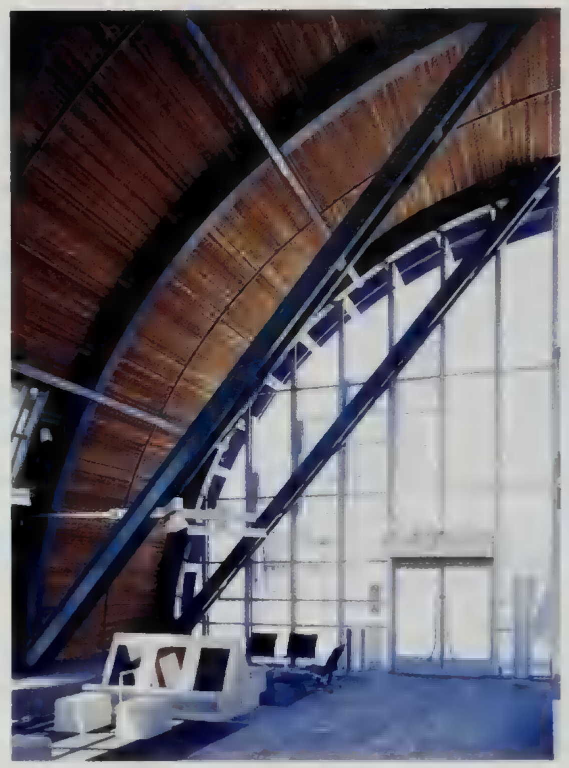
The site section (drawing be
shows the eventual 25-foot
depression of the railroad tr
which would allow car traffi
around the station to contin
uninterrupted. Following th
completion of track work in
next two years, passengers u
exit trains and ascend a terr
platform into the station. Pa
trees and a wood and metal
canopy provide shade along
south side of the station (pho
top and bottom left) and a pa
like link to the existing town
center.

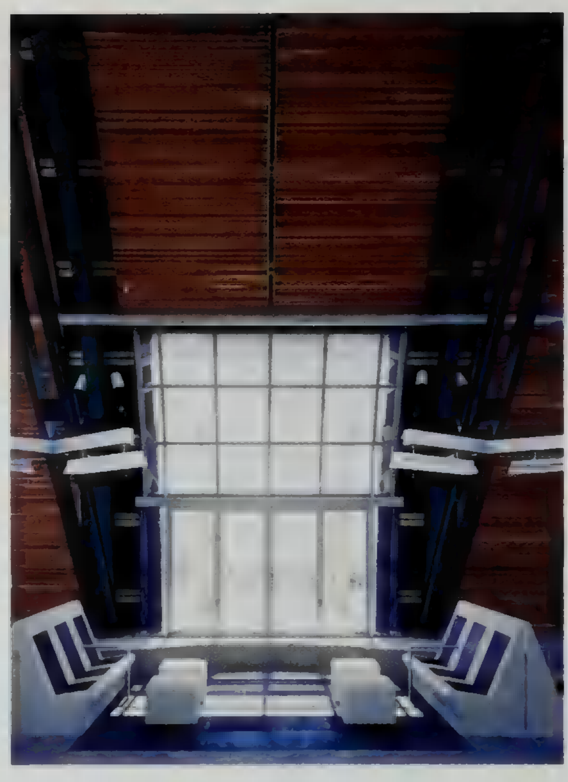
The tower, intentionally una
able to the public because of i
lack of handicap accessibility
serves largely as a civic
marker—rising some 68 feet
(almost double the height rest
tion of 35 feet), it makes the
station the tallest building in
town (opposite).

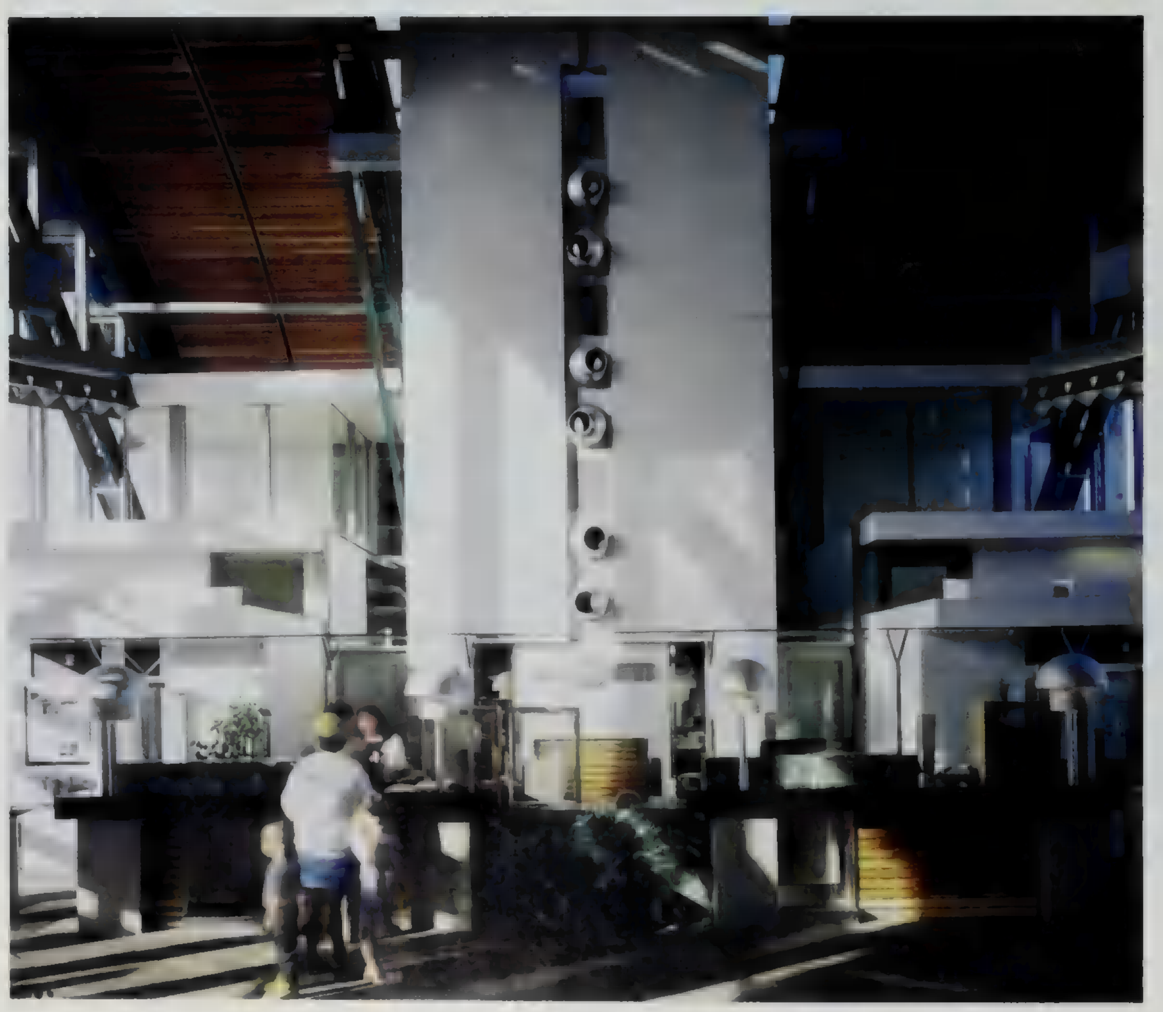


SITE SECTION LOOKING NORTH


Solana Beach Station







To control interior heat gain, Quigley used principles of passive solar design—shaded south facade, generous cross-ventilation, laminated low-E glass—but air-conditioning was added to ensure comfort. Quigle resolved the need for civic stature with his observation that "I'm designing for people in T-shirts," and created a grand public space modeled on the form of Quonset huts, popularized in the region during World War II. Panels of redwood strips are infill to the steel structure.

In the waiting area, benches are precast-concrete with rubber inserts (top left and right). A skylight over the ticketing counter (bottom and opposite) connects the two halves of the semi-circular roof. Ducts are arranged decoratively along the tower's center column. Flooring is asphalt tile.

Credits
Solana Beach Transit Station
Solana Beach, California
Owner: *North County Transit District*
Architect: *Rob Wellington Quigley Architecture/Planning—Rob Wellington Quigley, Guillermo Tomaszewski, Bob Dickens, Catherine Herbst, Todd Rinehart, project team*
Engineers: *Integrated Structural Design (structural); James Mann and Associates (mechanical); Flores Consulting Group (civil), Kimley-Horn (traffic); McKay Conant Brook (acoustic)*
Consultants: *McCulley Design Group (signage/interiors); Patrick Quigley & Associates (lighting); Adams Design Associates (landscape)*
General Contractor: *Douglas E. Barnhart, Inc.*

EXIT
Amtrak

When Design Meets Image

By Donald H. Shillingburg

During the last five years, the winners in the retail marketplace have been big-box discounters like Wal-Mart, whose combination of low-overhead and volume sales allows them to reduce prices without reducing profits. Coupled with the explosion in high-fashion "outlet centers," which offer designer wares at reduced prices, the market is hitting traditional retailers with a devastating one-two punch. Even shopping centers, once stalwart profit engines, have been affected. Looking to generate traffic, they have turned to entertainment and other non-retail offerings. But the problem remains: the retail industry is over-crowded and consumers' dollars are limited.

The increasing dominance of the big-box, bare-bones retailer is giving manufacturers like Levi's and Rockport shoes an impetus to enter the retail market on their own. Thus the "flagship store," once reserved by high-fashion companies for big-city locations, is now being used by manufacturers hungry to communicate directly with their consumers. At the same time, traditional retailers are fighting big discounters by rolling out a new generation of prototype stores that carve out specific niches in a crowded marketplace. What these "brand flagship stores" and new prototypes have in common is the goal of communicating to the consumer a strong identity—connecting a company's product with a particular life-style, much the same way that advertising has for decades. These stores are as much about exhibiting products as selling them; as such, they are part museum, part store.

Using design to build relationships

Because they are three-dimensional environments, stores can introduce the customer to "what the brand is all about" in a far more comprehensive fashion than a 30-second television commercial can. As Ed Murphy, president of Levi's Only Stores explains, "It's about setting up a relationship with the customer and building a bond which extends beyond the single visit."

Donald H. Shillingburg is a New York City-based writer.

The way store design is executed has an important parallel to adve
tising. In addition to the overtly "architectural" services design fir
offer, they are branching out to provide graphic design, furniture a
fixture design, and interactive video—all with the goal of building brand identity for clients. In so doing, design firms are blurring the distinction between architecture and advertising, graphic design an
merchandising.

Desgrippes Gobé & Associates, which designed the new Rockport Shoes prototype (page 112-113), calls itself an "image management and strategic design" consultant, and many of its partners come fro
industrial design and marketing backgrounds, not architecture. Th
firm's methods blend market analysis with strategic planning and t
integration of product, graphic, and architectural design.

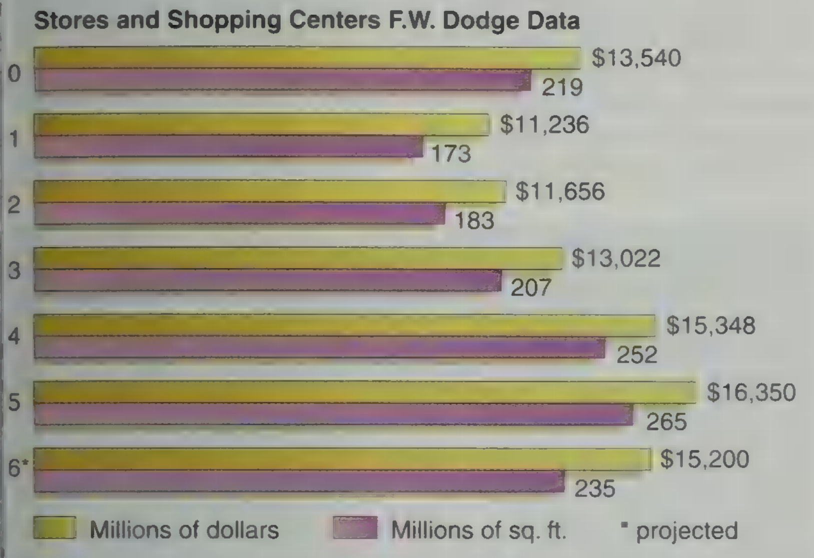
Not just architecture

Even traditional architectural firms are broadening the kinds of ser
vices they provide retail clients. For example, Bergmeyer Associate
in Boston offers image-based services such as graphic design and interactive media, in addition to architectural design, design implementation, and construction supervision. The firm understands that store design is a means of communicating with consumers. The stor
has to bring the customers in and let them know, implicitly, what the brand is about, says Joseph Nevin, a Bergmeyer principal. Mercha
dising, packaging, signage, and store design must work together to get the message across. As a result, the retail architect has ceased t
be just a form-maker and has become a mediator, bridging the gap between product and consumer.

Nevin, who was the principal-in-charge of the Original Levi's prototype store (pages 106-107), explains his firm's process, "It is a form team building. The architect brings a team of creative people to the table with the clients and their advertising agency. Together we discuss how we might create and communicate an image for the clie

Faster than postal service. *This 400-square-foot prototype shop for Dockers Authentics can be assembled within two days from a kit of display fixtures, standardized elements, and simple graphics. Designed by architect Henry Myerberg and Tucker Viemeister and David Hales of Smart Design, all elements are fabricated off-site, then delivered to the department store or shopping center where the shop will be placed.*

irms designing prototype stores are going beyond aditional architectural services, bridging the gap tween design and advertising.



ome cases, the clients communicate what they want very clearly,
le in others it is much more of a collaborative effort.”

ating architectural packages for multiple locations

ond establishing a brand identity, the key challenge of designing a
totype store is creating an architectural package that can be repli-
d in a wide range of spaces and settings. Using a kit of materials,
phics, and fixtures, the prototype must make the most of “dumb
es” found in context-free shopping malls. The design has to allow
a variety of circulation patterns, each allowing the customer to
erience the product in a carefully orchestrated way. In the
cess, the product itself becomes an important design element, as
e Original Levi's store where gigantic walls of jeans and shirts
color-coordinated to give the wall texture. The store also has to be
satile. Although its architecture can't change easily, it can incorporate fixtures, lighting, and graphics that can be altered periodically. Display fixtures are also being called on to provide on-floor storage to reduce the need for sales people to make trips to the stockroom.

Adaptability has been pushed to the maximum at a mini-IKEA shop in New York City, where the entire product line—and hence the look and design of the space—changes every season (below). Designed by the Walker-Group/CNI, the store changes merchandise, displays, and graphics every few months to transform itself from IKEA Cooks (featuring kitchen wares) to IKEA Sleeps (displaying bedroom furniture and accessories) to IKEA Plays (showcasing toys).

Because prototype stores are “rolled out” to various locations, ease and speed of construction are key factors in their design. Architect Henry Myerberg and industrial designer Tucker Viemeister responded to these factors in their design for a 400-square-foot display for Dockers Authentics (opposite), which can be installed in department stores. The store-within-a-store is made of inexpensive materials assembled off-site and can be shipped in and set up in two days. Today many stores are going high-tech, installing electronic information kiosks where shoppers can use interactive terminals to learn more about the company—and the brand. Of course, the interactive nature of these kiosks also allows the company to learn things about the customer—such as age, income, shopping habits, and so forth. A variety of video and electronic displays throughout the store allows the retailer to mix advertising with sales, bringing commercials directly to the sales floor. The task for architects is incorporating all these electronic gadgets and displays seamlessly into the overall design of the store.

The greater challenge for retail architecture and design, however, is to carve out a niche in the minds of consumers and fill it with the client's brand identity. ■

If this is cookware, it must be autumn. *Having established a reputation for its big-box stores in suburban locations, IKEA is now moving into cities with small outlets that focus on one product line at a time (left and far left). The prototype design by the Walker Group/CNI uses elements such as a long ramp and simple display shelves to create an environment that can accommodate various merchandising strategies while projecting a unified brand identity.*

The Original Levi's Store

New York City
Bergmeyer Associates, Architect

This brand-flagship store allows Levi's to present its entire line of clothes, from shoes to hats, and still have room to experiment with new styles. Ed Murphy, the president of Levi's Only Stores, explains, "It allows the customer to step into the Levi's brand, experience it, and be impressed by its breadth." Although the store must remain profitable, it functions largely as a marketing laboratory where the company can test new items, see what sell well, and experiment with various ways of relating its products to an entire life-style. The Levi's prototype design, developed by Bergmeyer Associates' Joseph Nevin and Dan Broggi, consists of two inter-related layers of design: a few eye-catching elements that grab shoppers' attention and a set of circulation strategies that guide people through the store. From the

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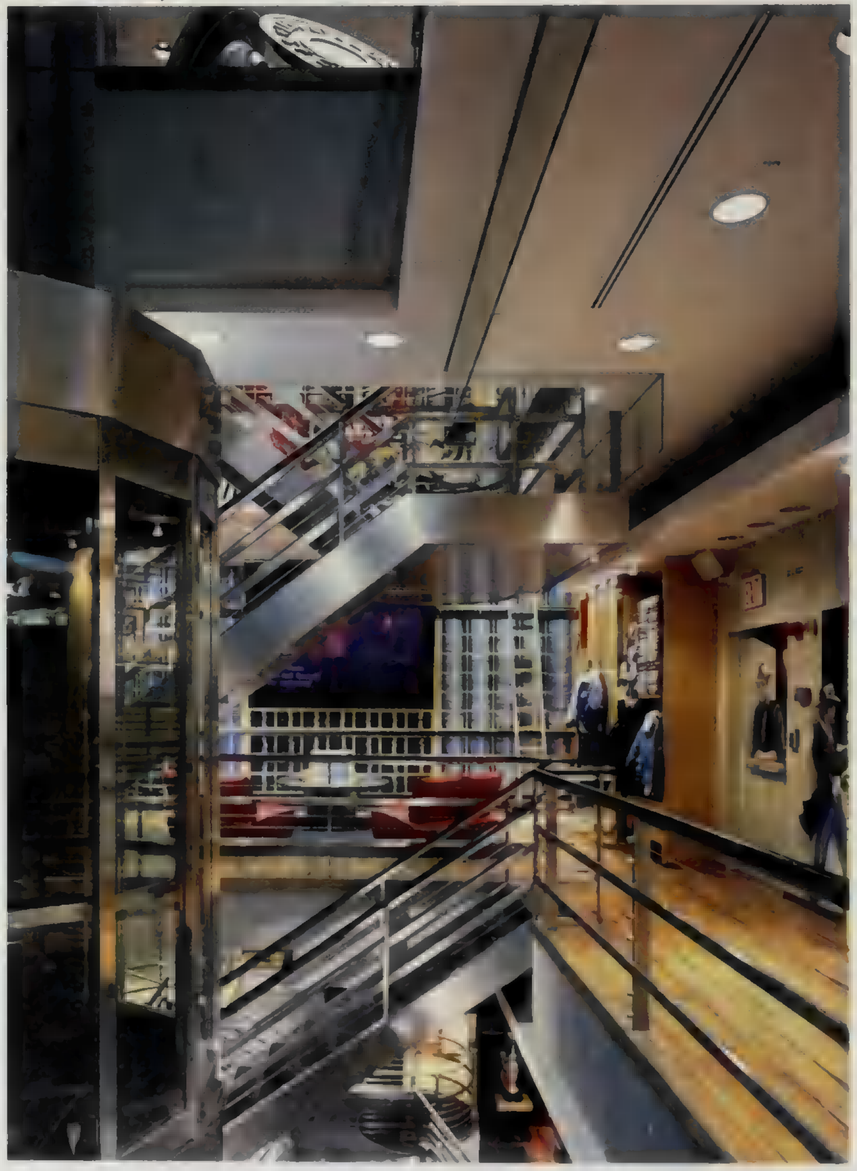
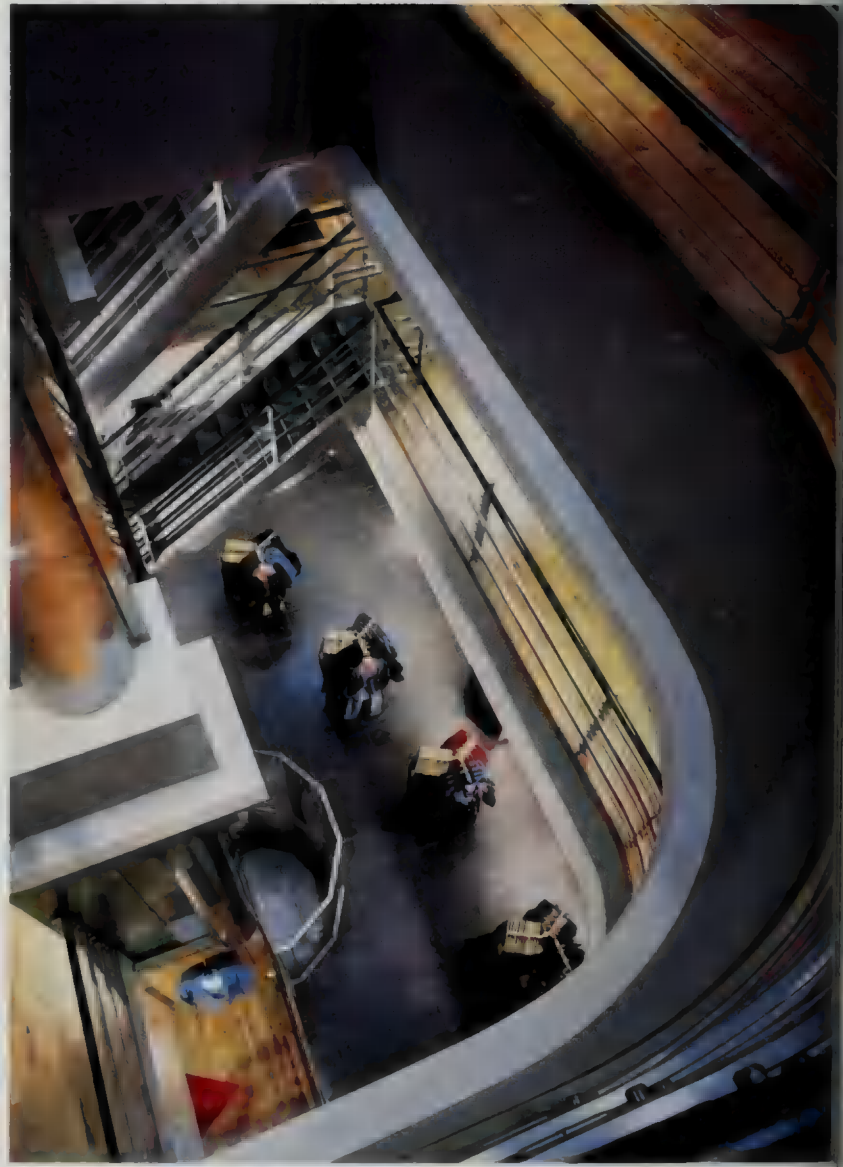
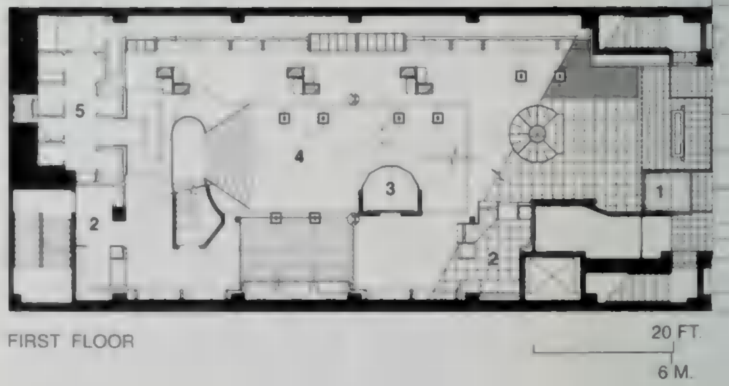




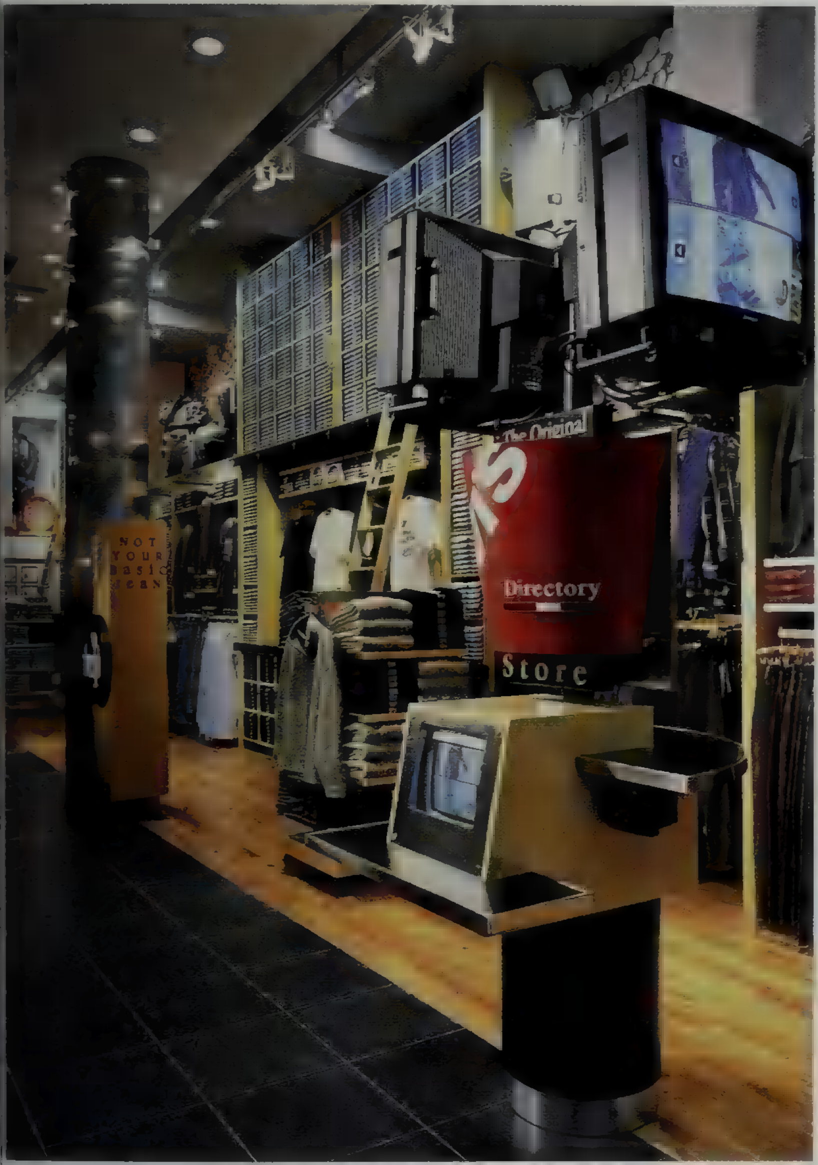
Music videos projected onto a giant screen (opposite right), interactive computer kiosks (opposite left), and a hard-edged palette of materials work together to create an environment in which Levi's is identified with a hip-and-cool, fast-paced lifestyle. Bergmeyer Associates used a grand staircase to help orient shoppers and open views to several floors at the same time.

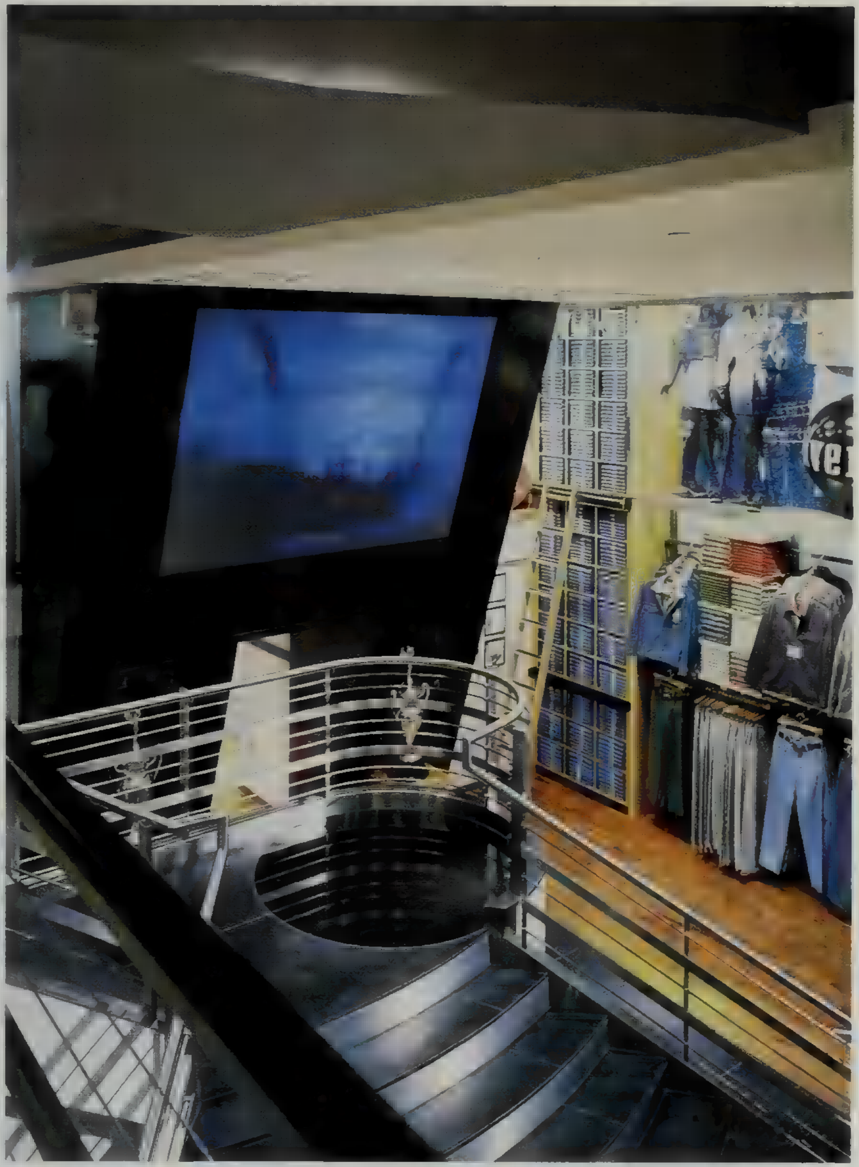


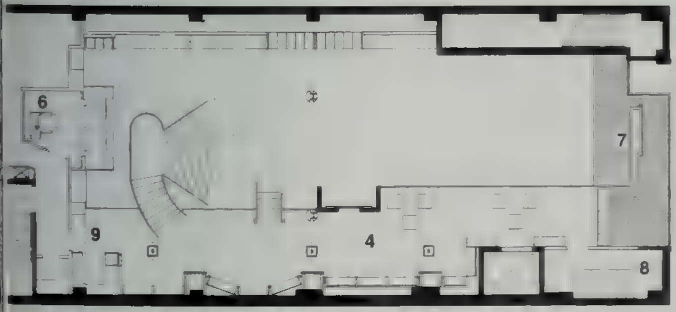
1. Entry
2. Cash desk
3. Elevator
4. Sales
5. Fitting rooms

ge red backdrops in the re's front windows to a large leo projection system at the ck of the ground floor, the hitects made the most of a few morable design elements. cause the New York City store upies an unusual space with a o-story-high ground floor and o additional floors above that, stomer circulation is difficult. retail establishments, high lings aren't always welcome since they can push products on display out of reach of customers. Although an open-glass elevator was already in place, the designers had to draw customers in and up to the higher floors where most of the jeans are sold. To accomplish this, they created a large open stairway that fans out on the ground floor, just below the video wall. Each of the upper floors wraps around the circulation space, surrounding the customers with product displays. One of the most appealing aspects of the design is the way it uses the product itself as a design element. For example, wall fixtures appear as gigantic stacks of jeans, arranged vertically by color, so the two-story space is turned into an advantage—the gigantic multi-colored walls of clothes impress rather than intimidate the customer.
D.H.S.

Credits
Architect: *Bergmeyer Associates—Joseph P. Nevin, Jr., principal-in-charge; Daniel Groggi, project manager*
Engineer: *Lovett and Rozman Associates (structural)*
Consultants: *Ripman Lighting (lighting design); GAVI Industries (audio/visual); Crimson Tech (interactive kiosk)*
Construction Manager: *Richter + Ratner Contracting*







ZANINE

6. Video
7. Display
8. Storage
9. Cash/wrap

Bottega Veneta

Copley Place Mall, Boston, Massachusetts
Francois de Menil, Design Architect
Bergmeyer Associates, Architect of Record

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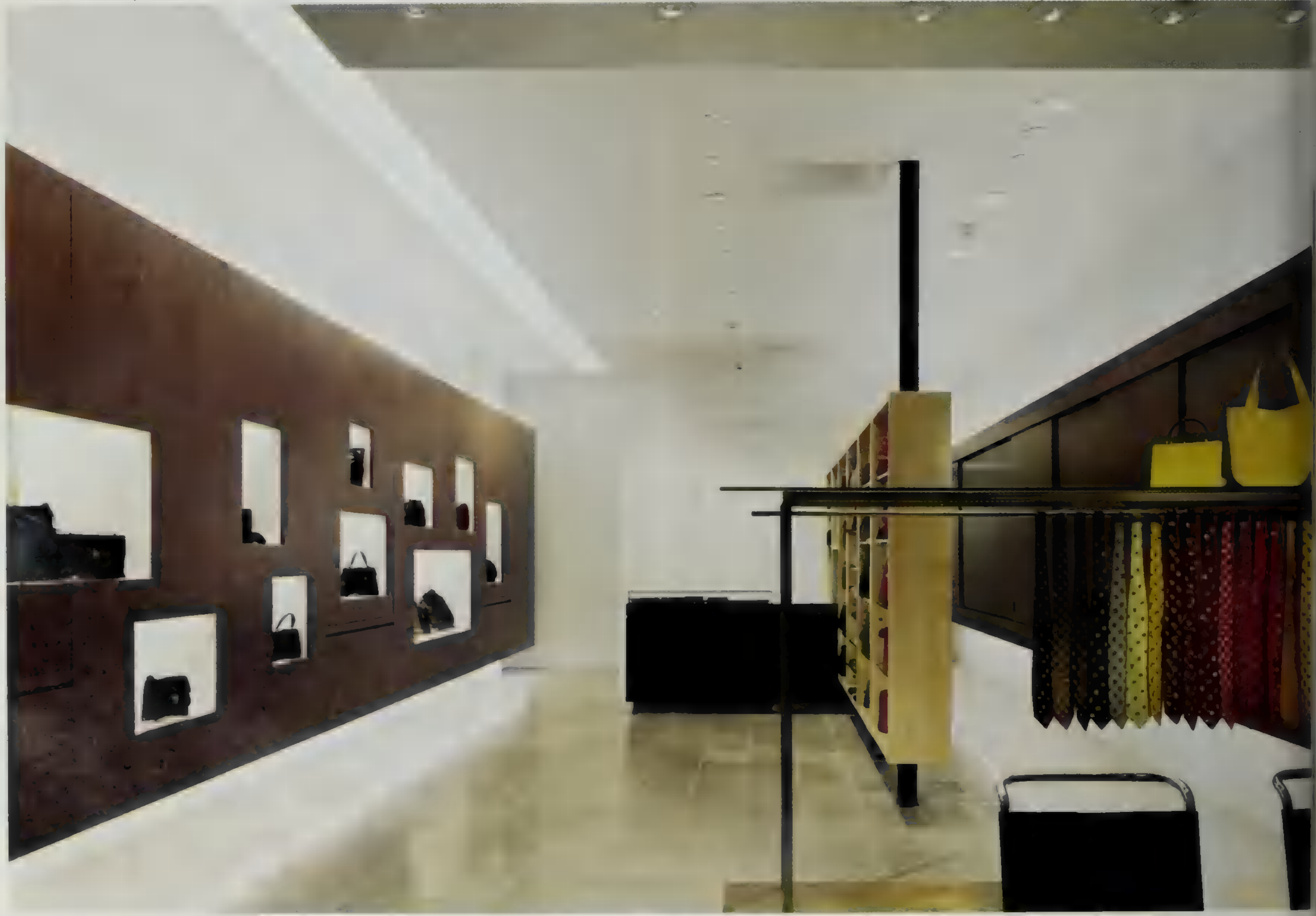
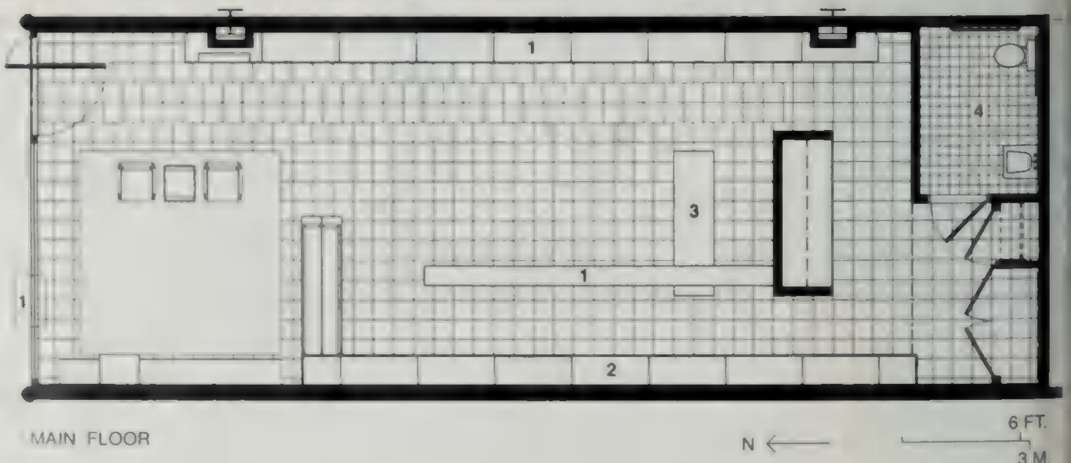


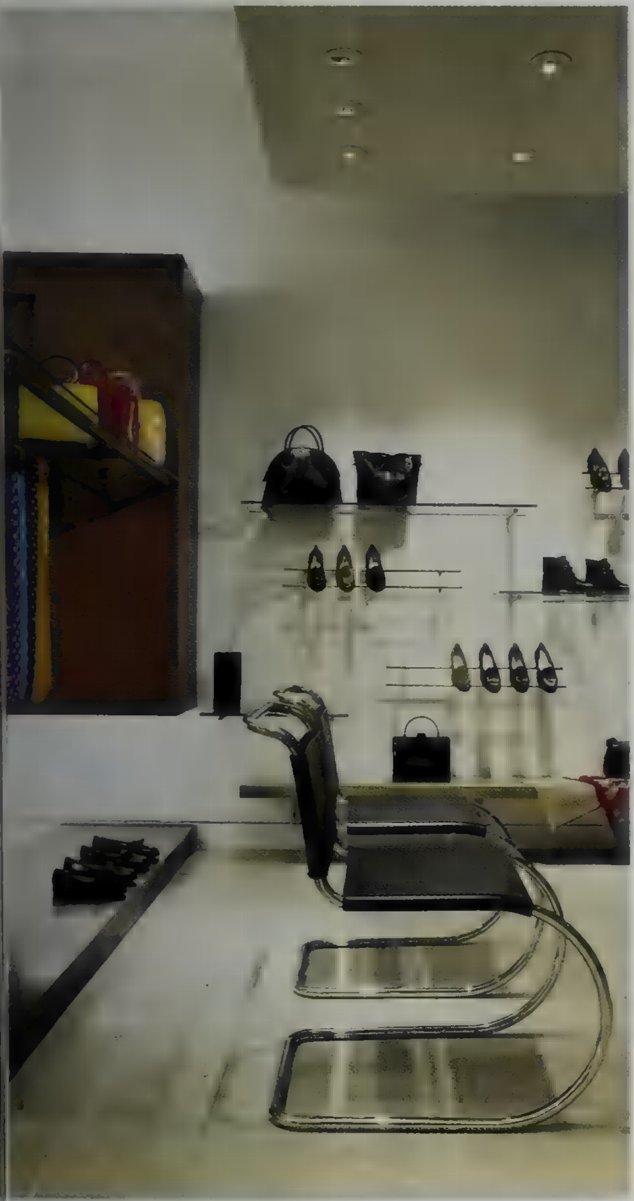
1. Display
2. Storage
3. Cash register
4. Restroom

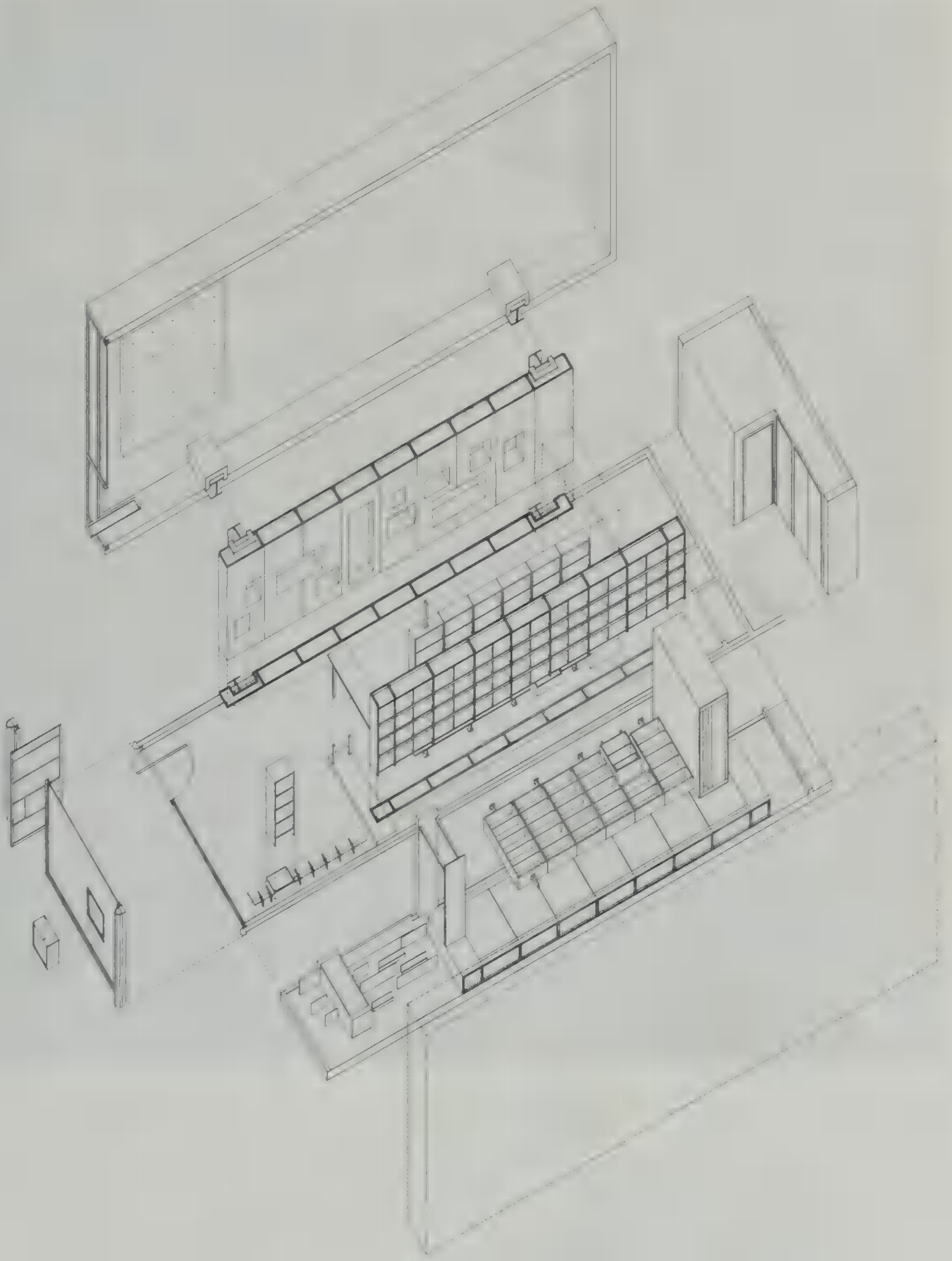


MAIN FLOOR

is high-end Italian leather-
ɔds retailer turned to Francois
Menil to give its stores a dis-
ctive, Modern image that
uld appeal to younger cus-
ners. De Menil's strategy was
blur the distinction between
display and the product being
played. "We thought that the
ole store should be the
play," explains the architect.
e a good showman, de Menil
ers sneak peeks without
revealing everything all at once. Some items are discreetly tucked inside deep openings in the main display along one wall, while others are hidden completely behind sliding doors. By displaying items as if they were in a museum, each the focus of its own space, de Menil and his associates give the merchandise an aura of treasure. While isolating key items in this way, de Menil accommodated the full range of product colors and line items by designing fixtures that double as storage cabinets. "We wanted there to be a small ceremony to purchasing a product. As the customer selects what he or she wants, the salesperson opens an adjacent drawer and the whole range of colors is made visible," explains de Menil. The more interested the customer gets, the more choices are revealed.
D.H.S.

Credits
Design Architect: *Francois de Menil, Architect—Francois de Menil, principal-in-charge; James Moustafellos, project architect; Viken Arslanian, John Blackmon, Jan Greben, Stephen Leventis, Lavinia Pana, Marek Walcrak, project team*
Architect of Record: *Bergmeyer Associates—Nina J. Monastero, senior associate; Jeanne Carey, project manager*





*e clean lines and minimal-
style of the store express
company's elegant Euro-
ın identity. Drawing
ove) shows how the archi-
ts designed a system of
ıwers and cabinets that
p merchandise on the sales
or but out of sight.*

Sprint Spectrum

Tyson's Corner, Virginia
CORE, Architect

In designing a chain of mobile-telephone stores, the Washington, D.C.-based architecture firm CORE was asked by American Personal Communications to express the excitement of a new technology, while making it accessible to everyone. Somehow the design had to be both cutting-edge and warm-and-fuzzy. The stores, located in Washington, D.C., and its suburbs, sell both equipment and service contracts for the ne PCS telecommunications tec- nology. This mobile phone sy makes use of digital commu tions over a new frequency. I bringing this product to mar the owner knew it would hav educate people about the tec ogy before they would be wil to buy it. The stores themsel would have to carry much of burden of teaching consumer about the system, how it wor,

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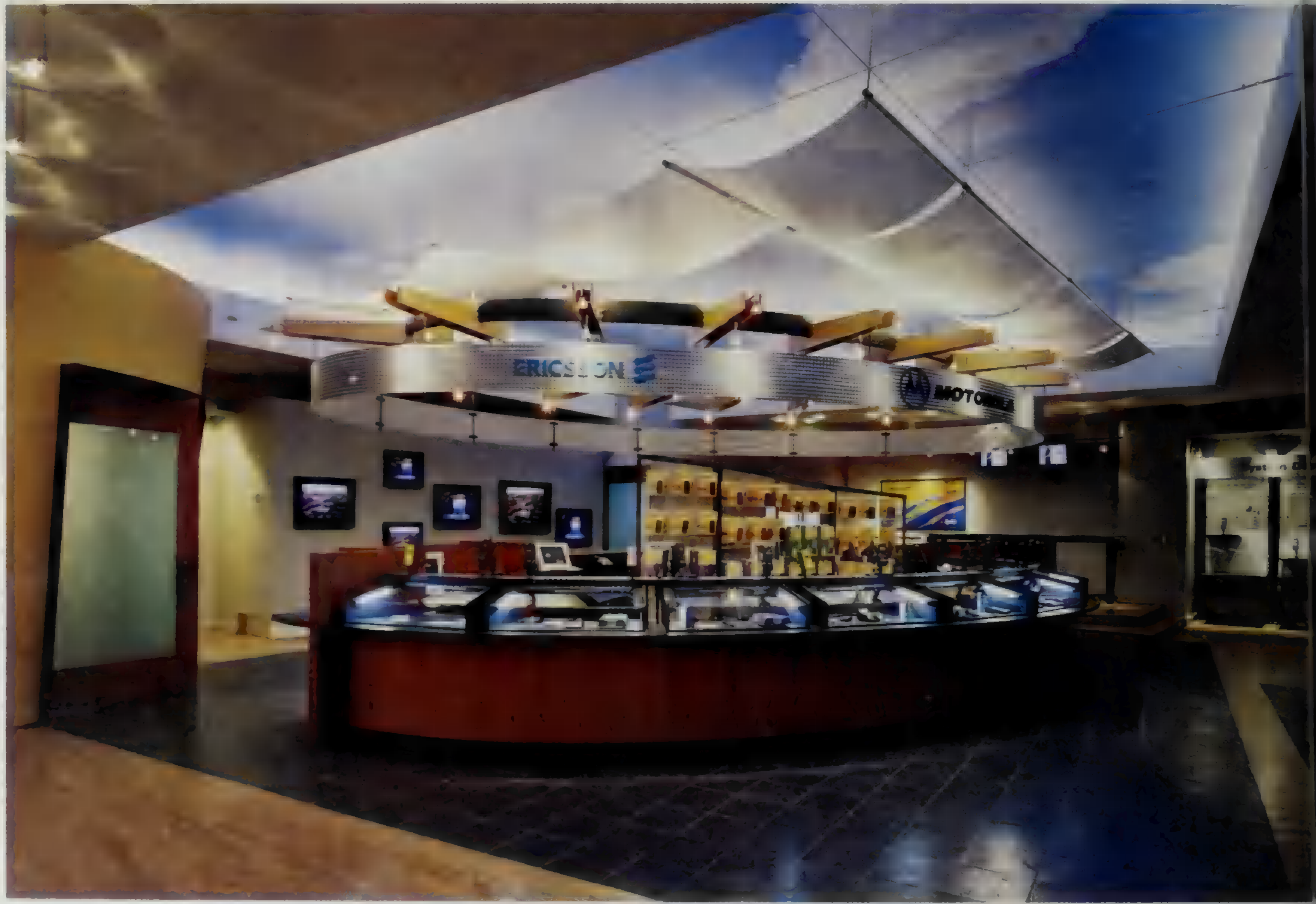
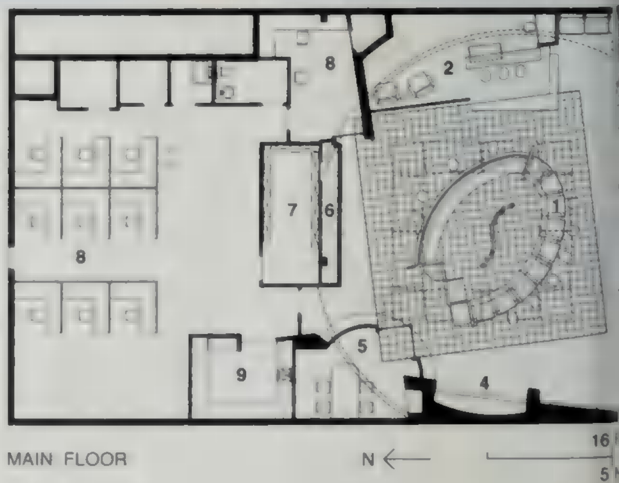


1. Kiosk
2. Lounge
3. Applications
4. Accessories
5. Conference
6. Video
7. Storage
8. Office
9. Pantry



MAIN FLOOR

d what kinds of sales and
vice options are available.
hey wanted us to give a place
d a face to this new form of
nsumer technology," explains
ter Hapstak, a CORE partner.
o we tried to mix communica-
e high technology like
eractive video with warm
terials and colors." The design
ds customers around the store
d past a series of displays that
plain the technology and how it works. On entering the store, customers move around an elliptical counter in the center of the space. Initial stops along the way include an interactive kiosk and a display of the phones themselves, followed by several panels that give a description of the types of service available. Finally the customer arrives at the central desk where a salesperson can answer any questions and take orders. The key element in the design is the central ellipse from which the sales staff operates. It was decided that a wandering sales staff would be too intimidating, so information would be provided at the customer's request. Both the route and the displays along it were designed to give customers the chance to learn about the technology on their own, while always being close enough to the central counter to ask questions. *D.H.S.*

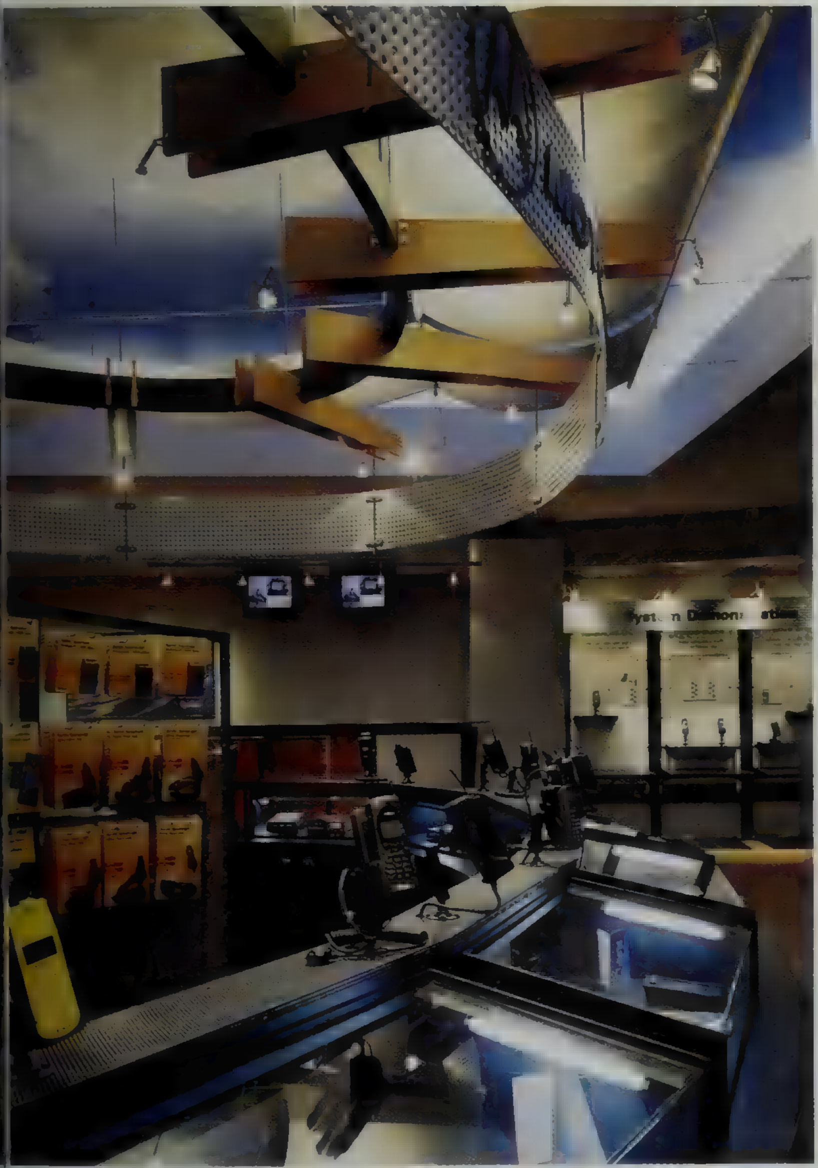
Credits

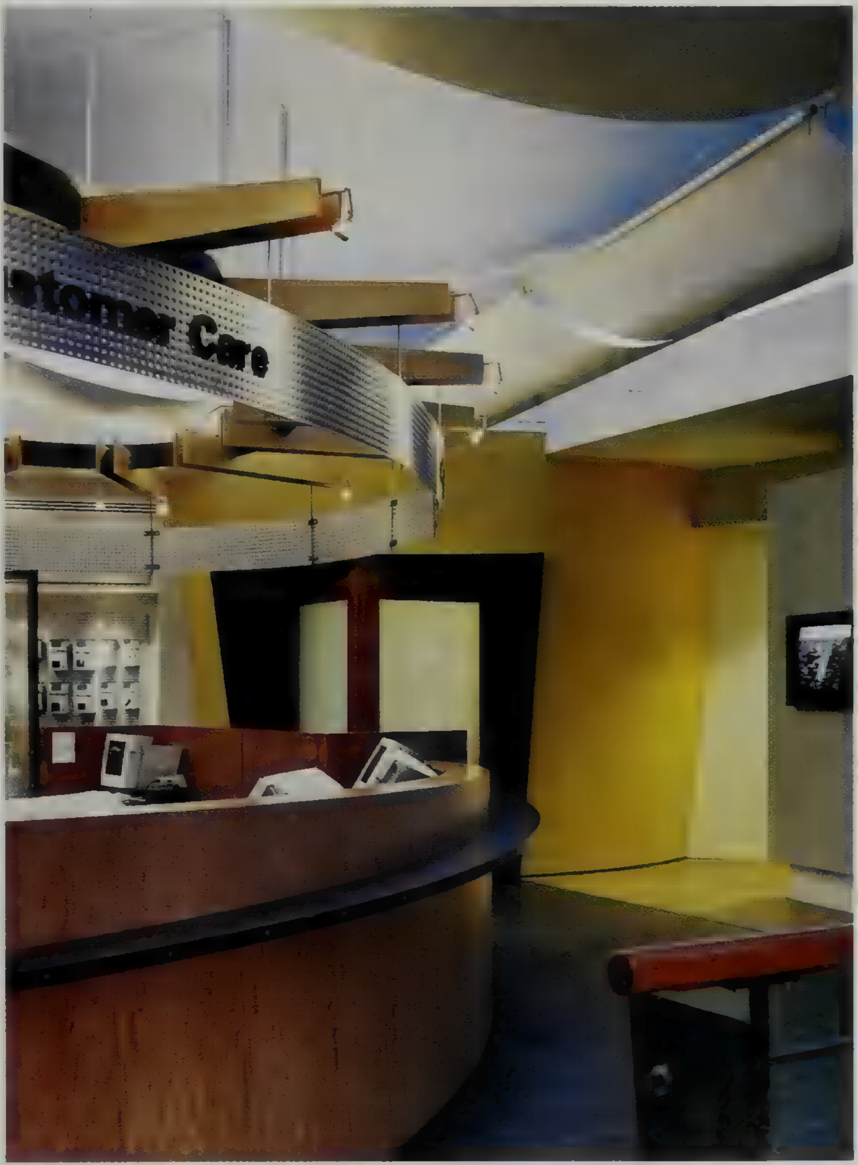
Architect: *CORE—Peter F. Hapstak III, Dale A. Stewart, partners; Ghassan Abukurah, project architect; Luis Boza, F. Quito Banogon, project team*

Engineers: *Face Associates (mechanical/electrical/plumbing) Rathgeber/Goss (structural)*

Lighting Consultant: *Coventry Lighting*

General Contractor: *The J.R. Austin Company*





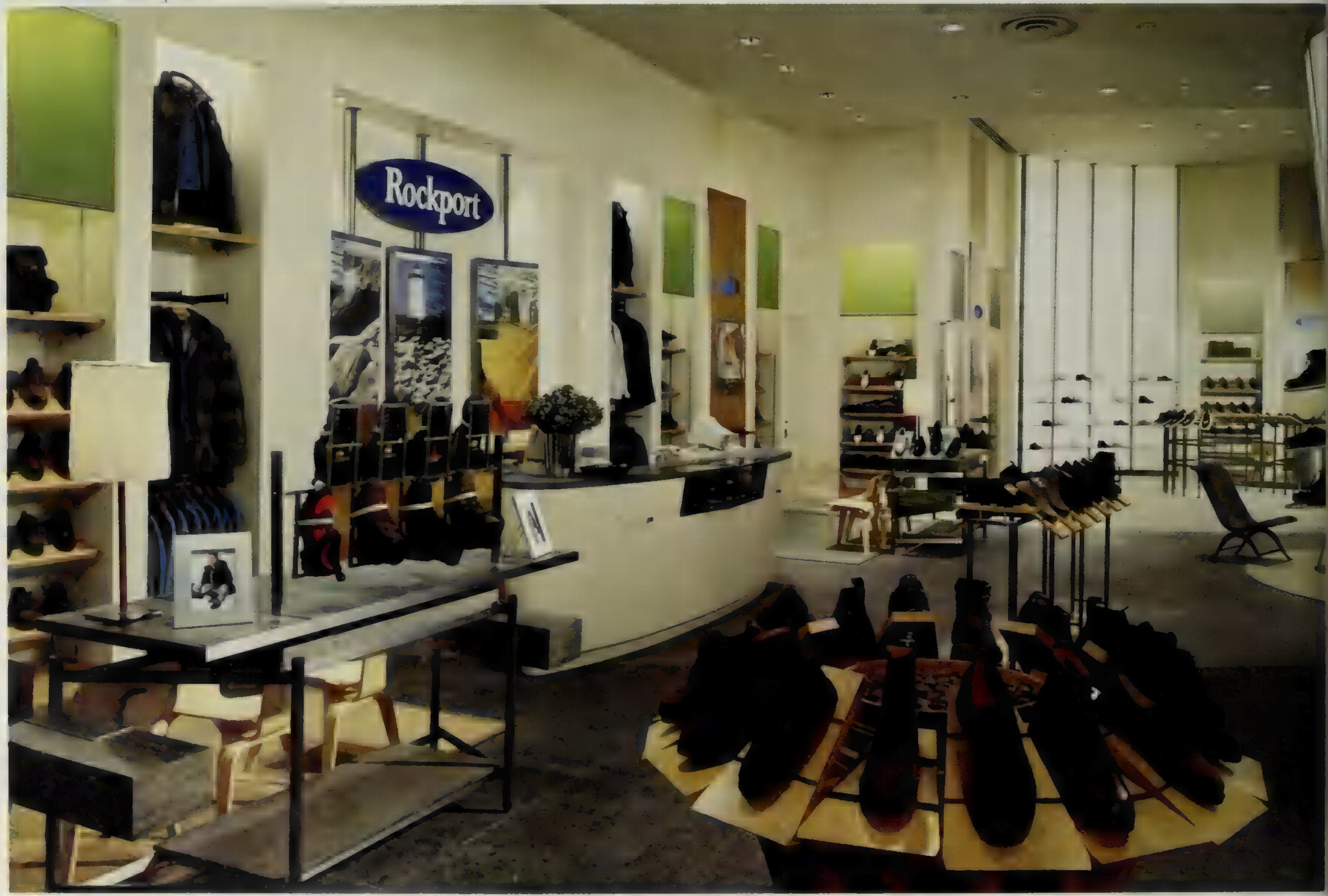
express the high-tech aspect of
telephones sold here, the
rint Spectrum stores include
variety of video displays—
m interactive computer
eens to television monitors.
the same time, warm colors
d a ceiling painted like the sky
posite) help project a sense of
endliness. Cubicles along one
ll (rear of photo above left)
vide some acoustical privacy
shoppers trying out phones.

The Rockport Store

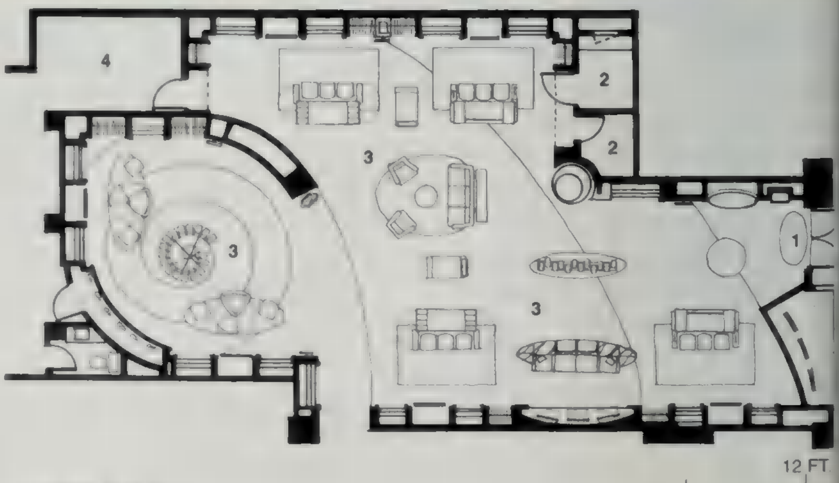
New York City
Desgrippes Gobé & Associates, Designer
Barry Koretz Associates,
Architect of Record

Known for its comfortable but stodgy shoes, the Rockport Company hired Desgrippes Gobé & Associates to help it develop a more exciting and fashionable image to boost sales. Starting with a new strategy—targeting younger Baby Boomers aged 35 to 45—and then weaving together packaging, advertising, graphics, and architecture, Desgrippes Gobé has given the once-sleepy brand a sharper, more dynamic image. Playing off the company's original home in Rockport, Maine, the new image, explains Desgrippes Gobé partner Ken Hirst, evokes "a place where the land meets the sea"—a place that is environmentally correct and casually fashionable. The colors, layout, and materials used in the new stores all subtly recall ocean and shore-line imagery. The 2,800-square-foot flagship store, the

© Andrew Bordwin photos



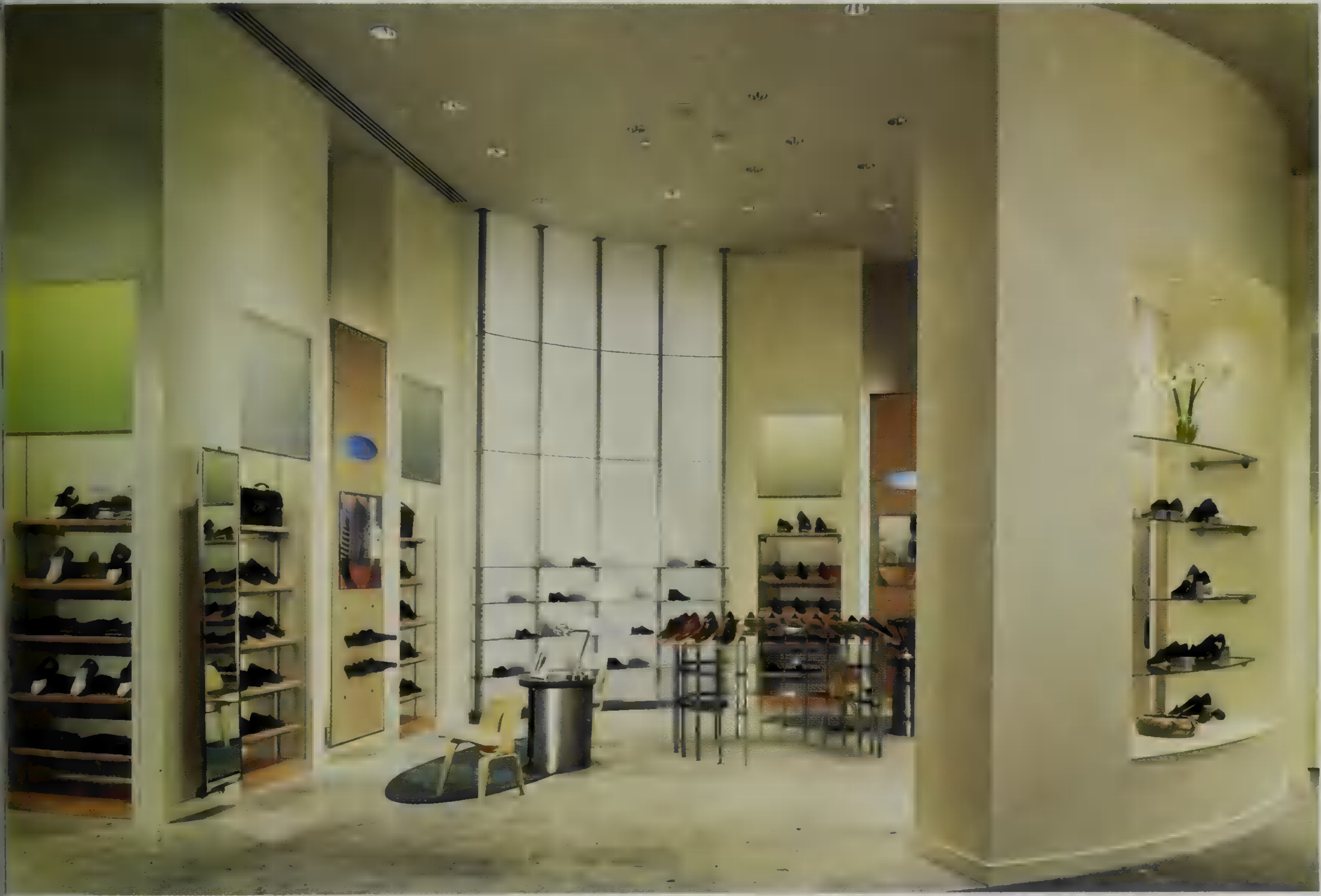
1. Entry
2. Fitting
3. Sales
4. Stock



MAIN FLOOR

rst of which is on the Upper
Vest Side of Manhattan, is orga-
ized into three zones, each
orresponding to a different kind
f shoe: rugged, relaxed, and
efined. These areas stretch as
ands across the store, forming
he curves of a nautilus shell that
ulminate in a large backlit wall
meant to evoke the Rockport
ghthouse," says Hirst. Reflect-
ng the different nature of the
hoes and the lifestyles associated with them, the designers varied the colors and materials in each of the three zones, keeping the fixtures mostly the same. For example, in the "rugged" area the floor covering is a rough tile, whereas the tile in the "relaxed" area is smoother. At the same time, the colors used in the store get brighter, lighter, and purer the closer one gets to the "refined" zone enclosed by the great curving white wall. *D.H.S.*

Credits
Designer: *Desgrippes Gobé & Associates—Ken Hirst, partner-in-charge*
Associated Architects: *Barry Koretz Associates (architect of record); Ahearn Schopfer & Associates (construction documents)*
Lighting Consultant: *Lighting Management, Inc.*
General Contractor: *GC Contractors*



ne of 12 flagship stores that will
built, the New York City outlet
ddresses the street with lots of
ass and a metal canopy (oppo-
te bottom). Adjustable fixtures
isplay shoes as if they are in
otion (opposite top), adding a
ynamic touch. An information
iosk (right in photo opposite)
cludes print, video, and elec-
onic media. Ceilings range
om 9 feet high at the entry to 17
et in the "refined" zone (above).

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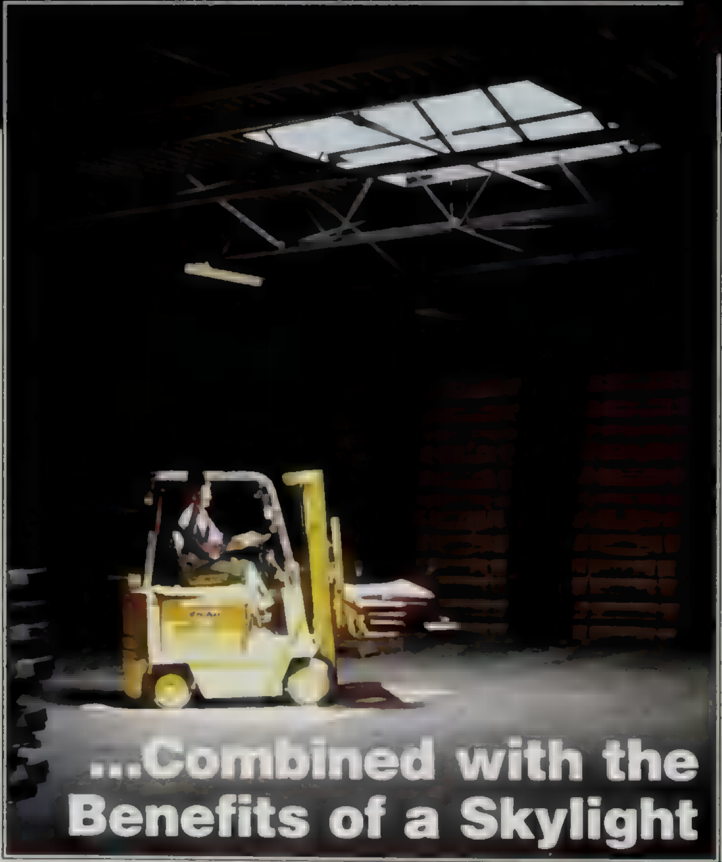

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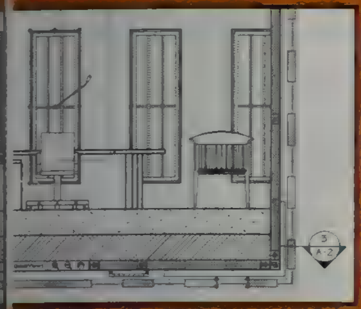

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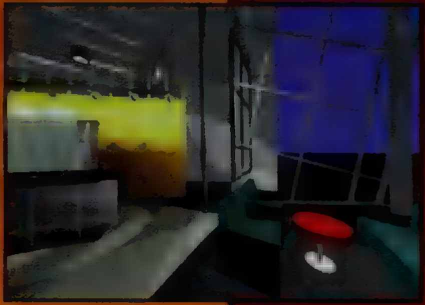

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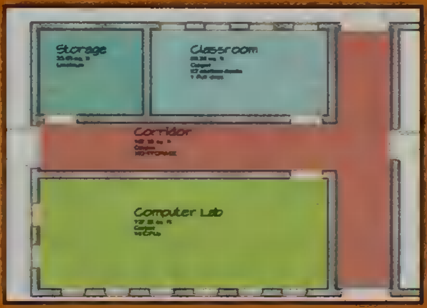

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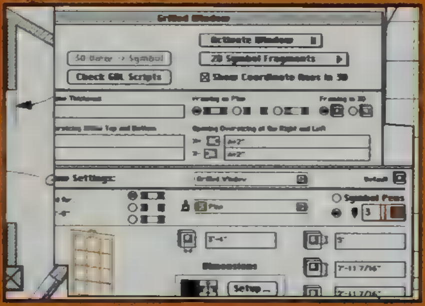

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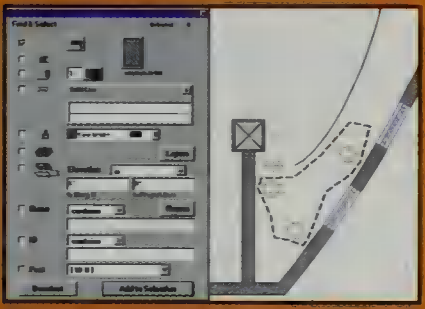

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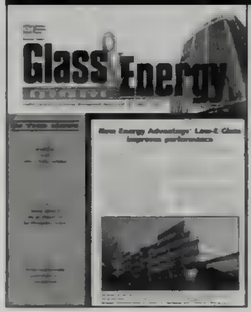
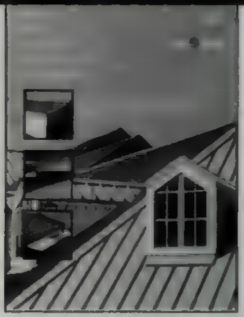
Product Literature



200. Glass-technology update
A new quarterly newsletter offered without charge to architects, *Glass & Energy Exchange* aims to keep readers current with glass technology and glazing techniques, inform on strategies for selecting glass, and discuss changes in energy and other codes as they affect fenestration design. Fax requests: 419/247-4517. Libbey-Owens-Ford, Toledo, Ohio. *

201. Sheet-metal accessories
Working with copper, terne-coated stainless, zinc, and other metals, Co perCraft prefabricates architectural elements such as cornice, dormers, cupolas, domes, finials, and decorati conductor heads and gutter systems. A color catalog illustrates standard products, and describes custom-design and restoration services. 800/486-2723. CopperCraft, Dallas.

202. CAD design for mouldings
A PC/Windows program helps an architect develop room designs with decorative embossed-wood mouldings. Users can view profile drawings of crown and cornice mouldings, place them in a "real" space, and print out details of custom-composite trim. Price: $19.95. 501/442-6986. White River Hardwoods-Woodworks, Inc., Fayetteville, Ark.



203. Standing-seam roof guid
Wind-uplift and maximum-positive load data for this maker's standing-seam roof panels are given in a four-page architectural guide. Custom roof-design capabilities include continuous long-length panels—up to 220 ft—for projects where end laps must be eliminated. 800/759-7474. Smith Steelite, Moon Township, Pa.

204. Tile-setting materials
A 16-page Sweet's catalog covers a full line of grouts, mortars, additives, underlayments, and other products for ceramic-tile installations, including exterior cladding, pools, and flooring. Describes newer hydraulic products as exhibiting very high strength, rapid cure, and uniform coloration. 800/992-6273. Mapei, Garland, Texas. *

* *Product Data on CAD disk*

205. Engraved glazed masonr
Spectra-Glaze block can be ordered with both standard-pattern and custom-design signage, logos, and decoration engraved in the facing. A stain-resistant as the smooth-surfaced face itself, engraving lets the block work as both wall and signag detailed murals can be incorporate as well. 800/638-3188. Burns & Russell Co., Baltimore.

Continued on page 131

For more information, circle item numbers on Reader Service Card.

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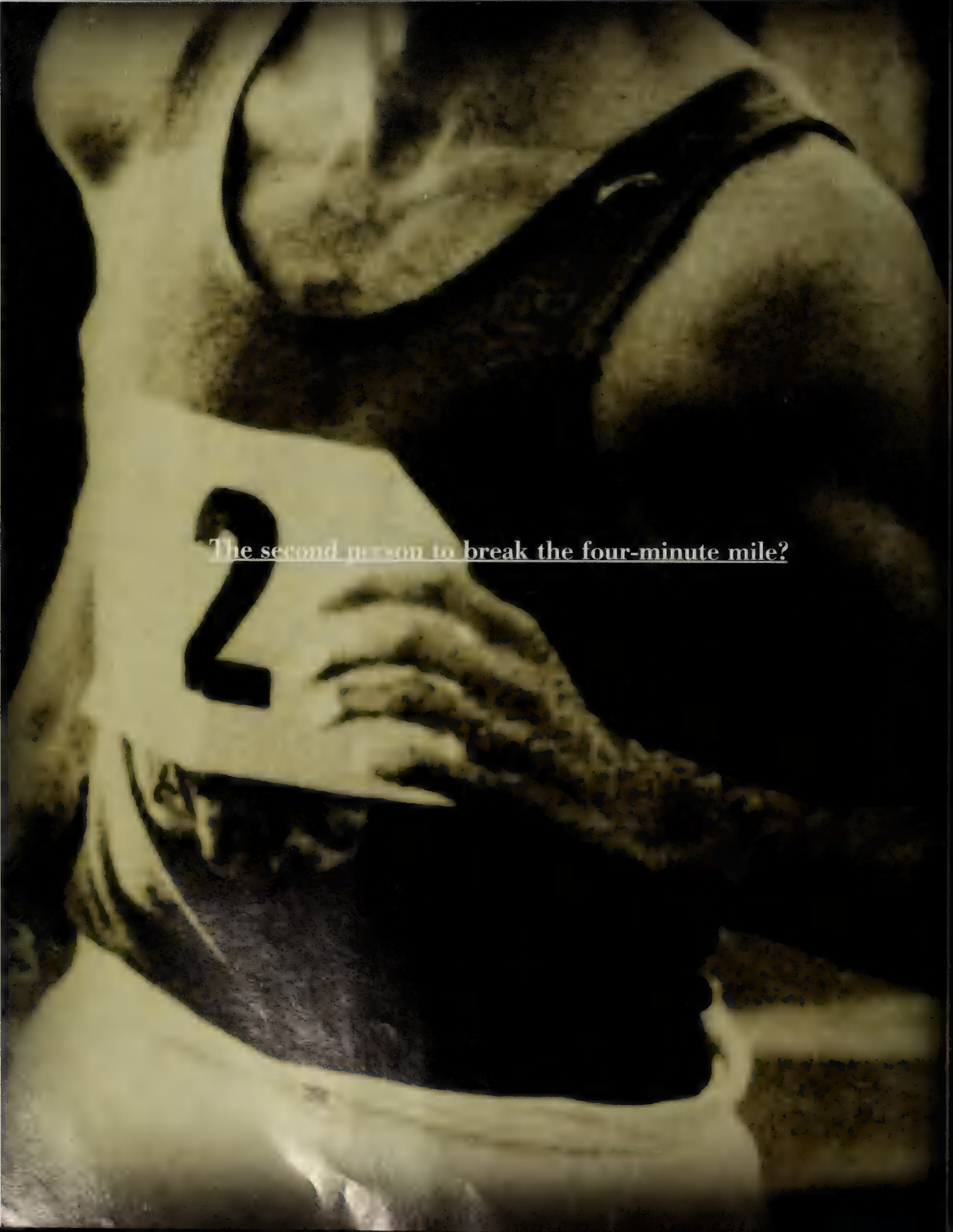
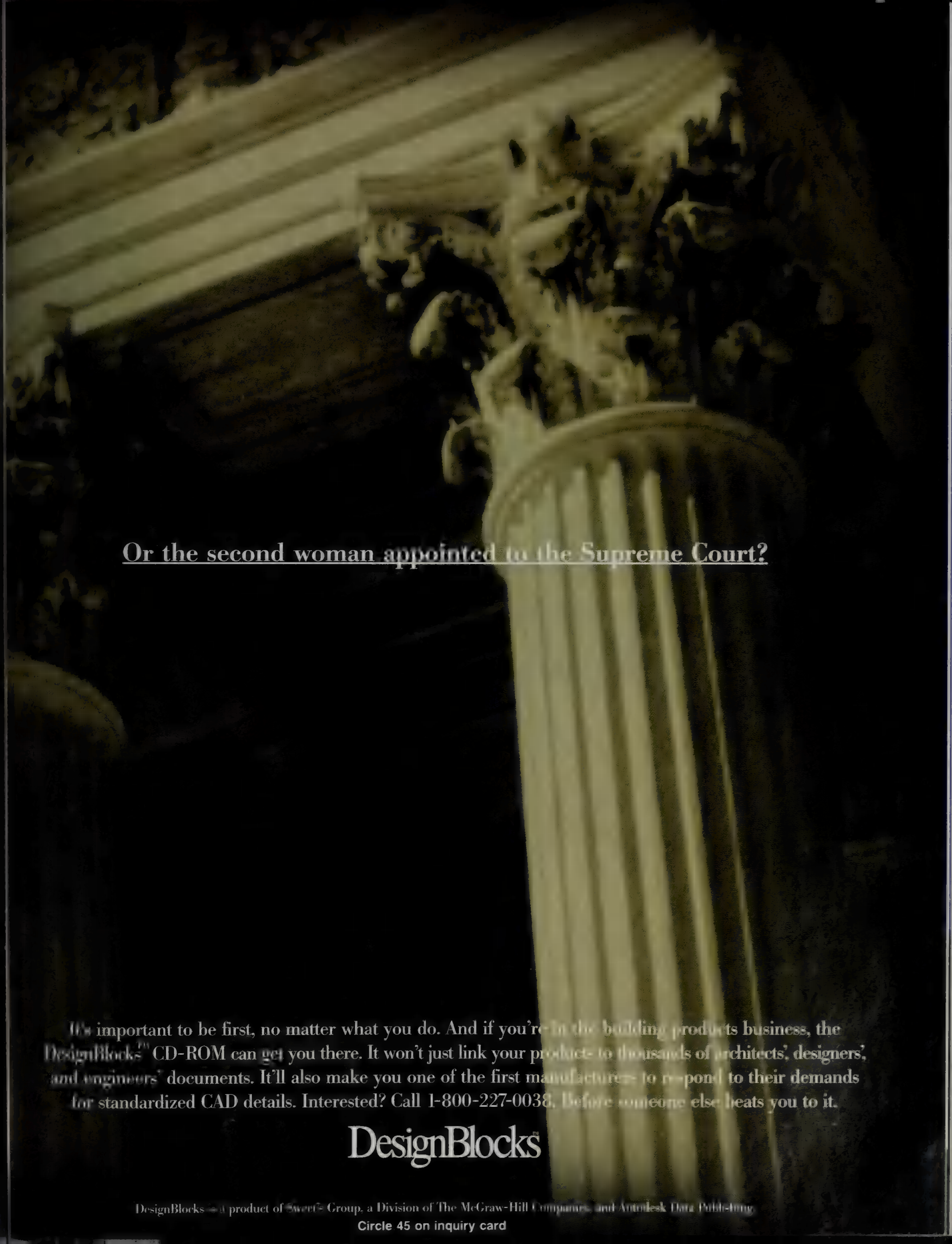

The second person to break the four-minute mile?



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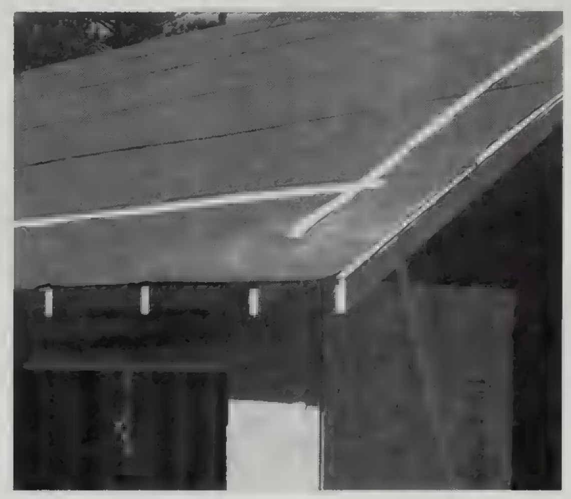

167. Uplift-resisting reinforcement
Millibar strapping, furnished in 3-in.-wide, 230-ft-long rolls, is a structural composite of Kevlar fibers with a tensile strength of 525,000 psi. A supplemental restraining system to be used in conjunction with conventional load-path devices, the material goes from the foundation up the side wall, over the roof and back down, reinforcing wood- and light-steel structures against high-wind loads. Installation in X- or V-patterns on side walls improves a building's seismic performance. A catalog gives test data. 770/844-9438. New Necessities, Gainsville, Ga.

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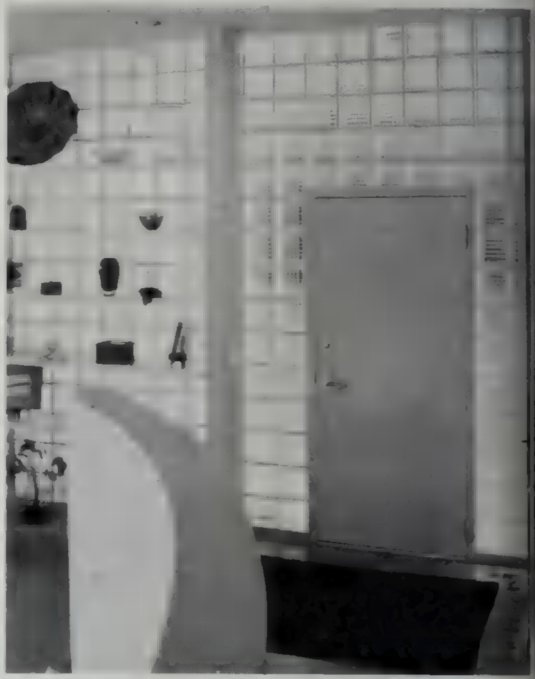
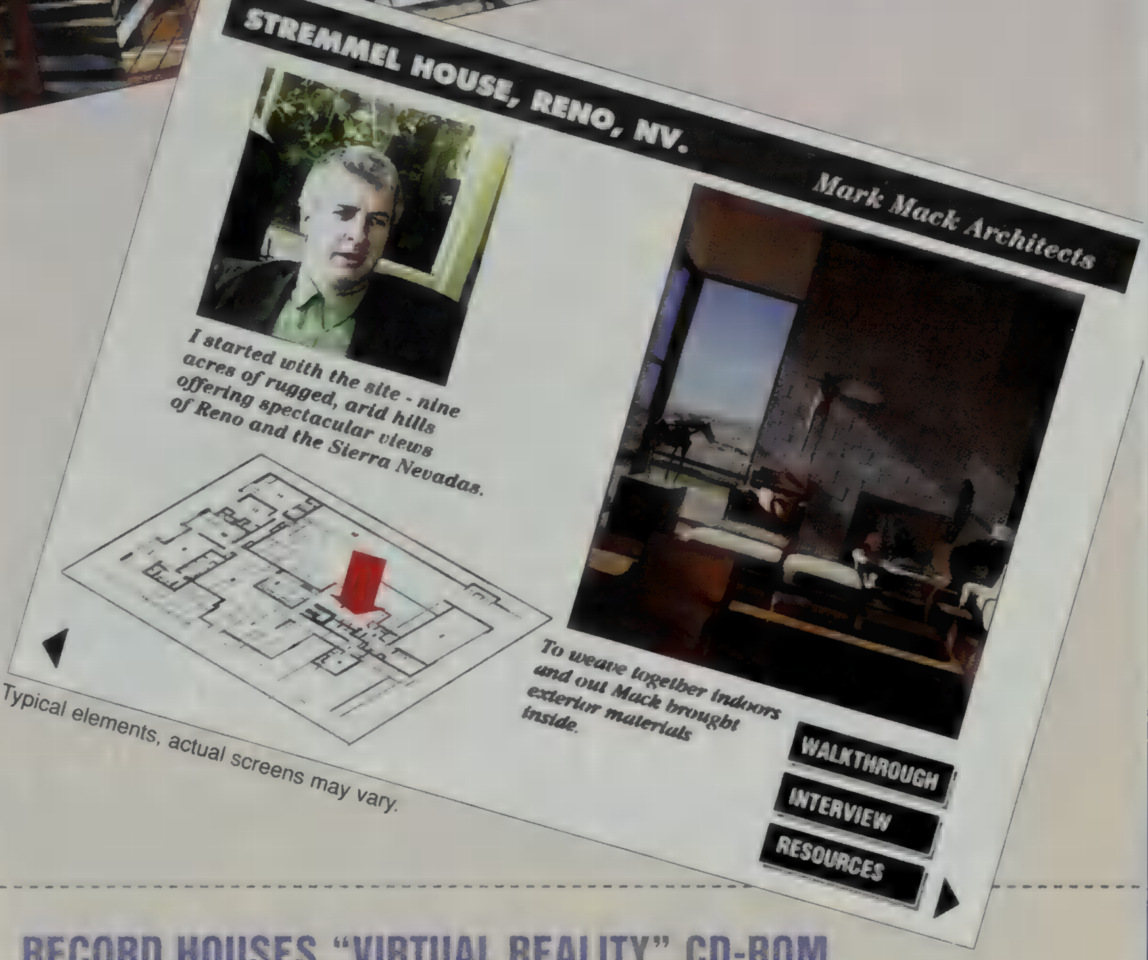


168. Impact-standard glass block
Glass-block windows fabricated with this maker's KWIK'N EZ flexible, all-silicone installation system have passed the new Sout Florida impact and wind-pressure tests. The approved assembly (not pictured) used 7 3/4- by 7 3/4- by 4-in.-thick Thickset block. The exterior wall (above), built with Argus-patte units, transmits 75 percent of available light; this block can have a 45-minute fire rating in 6- and 8-in. unit sizes. 412/327-6100. Pittsburgh Corning, Pittsburgh.

169. Work-area multimedia outlet
A flush-faced outlet box conceals and protect connections for mixed-media cables, includin ST- and SC-style fiber-optic and twisted-pair cable. Faceplate can be ordered in four colors and stainless steel; its shallow depth permits furniture to be placed directly agains the faceplate without dislodging the connection. 717/986-5160. AMP, Inc., Harrisburg, Pa. ■



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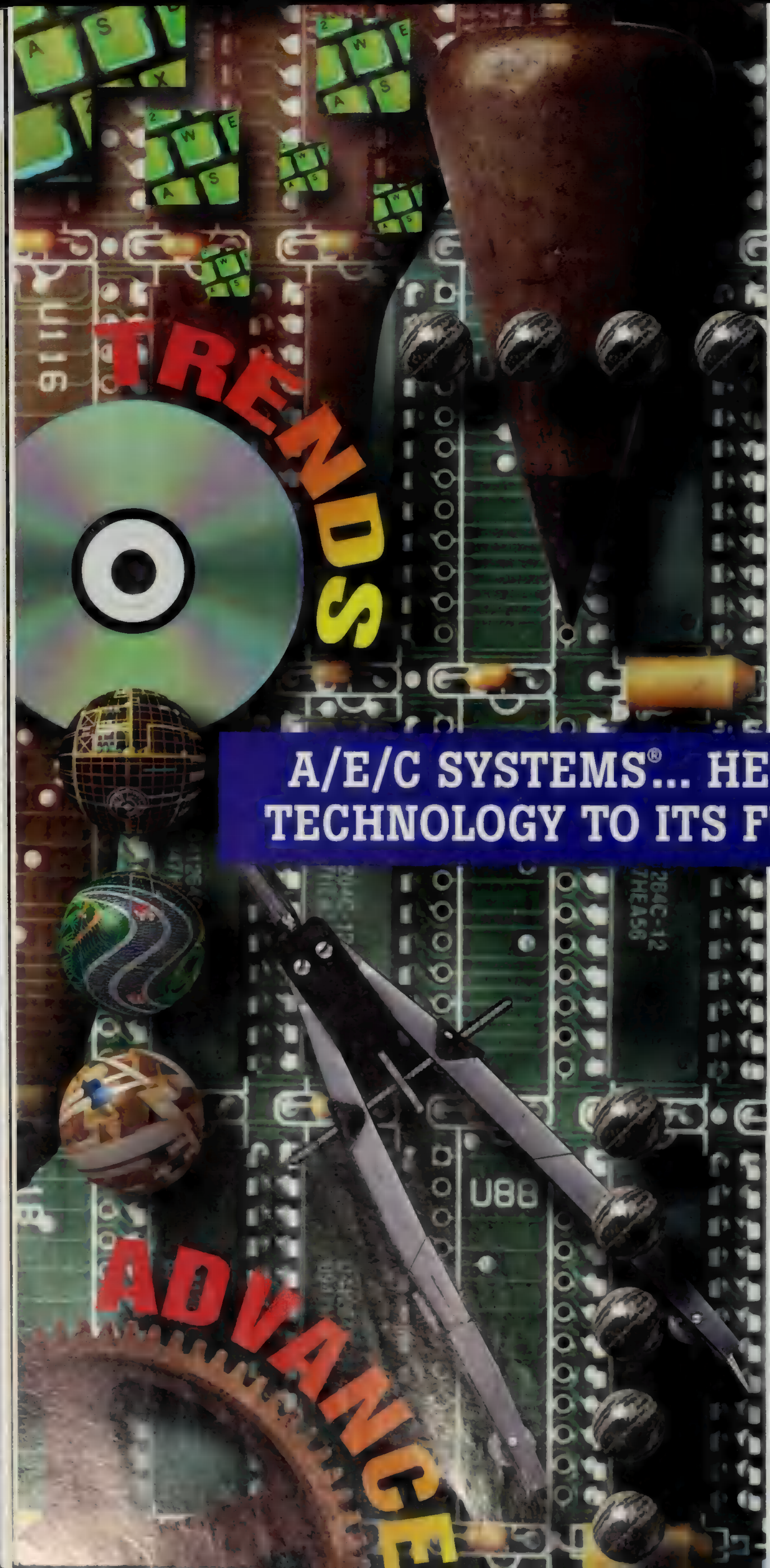

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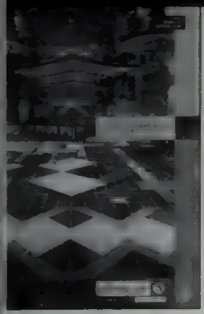
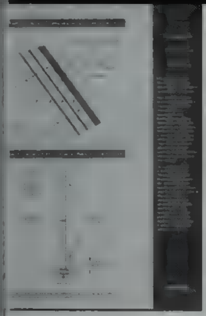


5. Commercial tile
-page catalog covers tile made ifically for commercial-use codes traffic requirements. Illustrated roduct and application photogra- with color-option, test, and ensions given for each tile type. cribes The Sample Connection, a d-response specification program. FLA-TILE. Florida Tile Indus- , Lakeland, Fla.



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. Custom-pattern laminate
orful catalog illustrates Pionite nates for interior use, including nGuard solvent-resistant materi- healthcare and laboratory ces, fire-rated and static-dissipa- products, and a low-minimum- custom-design program. Quick- samples offered to specifiers. 46-6483. Pioneer Plastics Corp., rn, Me.

207. Single-source roofing
A 22-page Sweet's catalog gives material, performance, and installation details on RubberGard EPDM, modified-bitumen, and UltraPly roofing product lines, and specifications on ISO 95+ polyisocyanurate insulation. Available via the Internet at firestonebpco.com, or by calling 800/428-4442, x 7084. Firestone Building Products Co., Carmel, Ind.

209. Air ducts made of fabric
DuctSox need no separate grilles: the ducts themselves diffuse cool air through the surface of the material without intrusive drafts. Said to distribute even-temperature conditioned air throughout large spaces. Fabric acts as its own filter, and can be ordered in colors to work with interior designs. Data in CD-ROM format. 520/295-8500. Krueger, Tucson, Ariz.

211. Impact-resistant EIFS
A brochure describes the I-C Gold mechanically attached exterior system as particularly suitable for retrofit applications, as it can maintain existing design elements while providing a new, thermally improved weatherproofing cladding. ASTM fire and other test results cited. 800/537-2739. Parex Inc., Redan, Ga.

Continued on page 131

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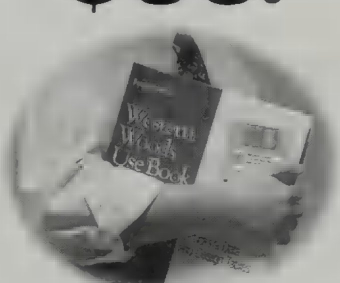

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Special Report *continued from page 22*

implies a radical shift in standards from blocks of knowledge to modes of thought," says Mitgang. "Communication" would become "sharing of knowledge" in this new understanding; "design," "integration of knowledge." Diverse programs should be encouraged that integrate technical and practical knowledge and offer flexibility.

Although current programs are effective in teaching design skills, students need help in computer-aided design and writing skills, in non-Western studies, and in construction materials. One deficiency stood out—graduates overwhelmingly mentioned "professional practice" as the greatest shortcoming in their education.

Goal 4: "A Connected Curriculum"
After completing their coursework all graduates should leave schools of architecture not as fully trained technocrats, but as "reasonably competent beginners." A more liberal curriculum would also provide greater exposure to the great ideas and personalities of history, philosophy, and literature, preparing architects to confront ethical and moral dilemmas plaguing the contemporary world. A more liberal education would prepare architects to communicate with the public, a critical professional shortcoming.

Goal 5: "A Climate for Learning"
Ideally, students will reach beyond the rarefied world of the design studio to encounter the entire university community, according to the report. "The whole rationale for moving the focus of professional education from apprenticeships in the 19th century to the campus was that certain types of education are best done on campus," contends Mitgang. However, researchers often found today's students to be socially isolated, physically removed from campus centers, and overworked. The architectural school, Mitgang asserts, should be "a caring place, a just place, open and communicative, interesting, even celebrative," reflecting a diverse student body and faculty.

Goal 6: "A Unified Profession"
Schools that are open, communicative places can help achieve a unified profession. They can help students find work and provide better counseling; professionals can take a more active role in educating future architects through mentorships, pre-graduate and post-graduate internships, and continuing education. Economic challenges abound, however, hampering some schools' abilities to respond. "One school is struggling [to improve] but they don't have secretaries."

Others lack libraries, materials labs, and
scholarships to increase diversity.

Goal 7: "Service to the Nation"
Whatever their material resources, archit
tural schools are most effective when the
foster "a climate of engagement" for facul
and students. The study concludes with a
to action entitled, "Service to the Nation.'

The report was born out of the shared
concern of architects, students, and educa
tors for the future of architectural educat
A consortium of five organizations commis
sioned the study in 1993: the American
Institute of Architects, the American Inst
tute of Architecture Students, the
Association of Collegiate Schools of Archi
ture, the National Council of Architectura
Registration Boards, Inc., and the Nation
Architectural Accrediting Board, Inc.

Solid Reputation
Building Community is expected to prov
widespread interest throughout the archit
tural community and the larger world of
education, in part because it has been issu
as a Carnegie Foundation report. In the p
the foundation's investigations have trig-
gered significant changes in other discipli
including medicine, which was the subject
a landmark study in 1910.

Another critical factor is the reputation of
co-author, the late Ernest Boyer. Former
president of the Carnegie Foundation and
former U.S. Commissioner of Education,
Boyer was regarded as a pre-eminent edu
tor and author. He died in December 1995
five months shy of the publication of his fi
work.

An example of successful practices drawn from *Building Community*:
"Texas A&M University's College of Arch
tecture operates one of the nation's most
ambitious architectural research program
It includes a Hazard Reduction and Recov
Center, which studies ways to reduce dam
from natural and technological disasters; t
CRSS Center, which studies issues relate
management in the design and constructi
industries; a Visualization Laboratory, whi
studies computer animation and electroni
design simulation; the Center for Housing
and Urban Development, which has stude
and faculty working on the needs of impov
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gy Laboratory, which conducts basic resea
on how built structures affect human psy-
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Manufacturers' Sources

Pages 72-79

Silicon Graphics Entry Site
Studios Architecture, Architect
Curtain wall, entrances: Walters & Wolf Glass. Cladding panels: Mitsubishi (Alpolic). Tinted glass: PPG Industries. Laminated glass: Viracon. Exterior standards: Poulsen Lighting. Lobby pendants: Nova Industries. Reception desk: custom by architects, fabricated by Woodtech Industries. Countertop: Syndesis, Inc. (Syndecrete). Railings: Lee's Imperial Welding. Corridor carpeting: Interface Flooring Systems. Office system: Herman Miller. Indirect fixtures: Peerless Lighting. Ceiling: Armstrong World Industries. Ductwork: designed and fabricated by ACCO. Paints: Kelly Moore.

Pages 80-85

Forrestal-Bowld Music Center, Phillips Exeter
William Rawn Associates, Architects, Inc.
Lead-coated copper roof: Revere Copper. Brick: Stiles & Hart. Buff-color mortar: SGS. Cast stone: Duraston. Windows: Kawneer Co. Torchières: Custom by architects, fabricated by Visa Lighting. Tile floor: Chromtech Porcelain. Railing: Kempo. Sconces at stair—Murano Glass; on wall—Shaper. Paints: Sherwin Williams. Rattan furnishings: Smith & Hawken. Rug: Prince Street Technologies. Woodwork: American Woodcraft. Windsor chairs, tables: Charles Webb. Cherry-veneer doors: Weyerhaeuser. Orchestra rehearsal—VCT floor: Azrock. Pendants: Shaper. Wallwashers: Peerless Lighting. Wall panels: Conwed; Guilford of Maine fabric. Acoustic treatment: International Cellulose (K-13). Orchestra chairs: Wenger.

Pages 86-95

Suntec City, Singapore
Tsao & McKown, Architect
Aluminum cladding: Huat Aluminum, Ltd. Heat-strengthened insulating glass: Asahi Glass Co. Curtain wall: Permasteelisa Pacific, Ltd. Granite cladding and pavers: fabricated by Campolonghi Italia; Stone Specialist. Elevators: Ryoden, Ltd. Escalators: General Electric; Otis.

Pages 96-103

Solana Beach Transit Station
Rob Wellington Quigley Architecture/Planning
Curtain wall: Torrance Aluminum, fabricated by Tri City Glass. Laminated solar-control glazing: Southwall Technologies. Reflective glass: I.C.D. (Opaci-Coat). Zinc roofing: Cominco. Sunscreens: Cambridge Wire Cloth. Paneled ceiling: Redwood. Glulam beams: Alaskan Yellow Cedar. Entry doors: Rotoswing. Pulls: Elmes. Interior doors (wood): T. M. Cobb; hollow-metal doors: SteelCraft. Closers: Dorma. Locksets: Best. Hinges: Hager. Linear fluorescents: Zumtobel. Cylindrical spots: Lumière. Seating: Via. Benches: Quick Crete Products. Wood stain: Ameritone. Metal paint: Tnemec. Asphaltic floor: Hastings Pavement Co. Rubber tile: Carlisle Tire & Rubber (Soft Pave). Ticket-counter lighting: Poulsen Lighting. Air-diffusing vents: Seiho. Clock: Electric Time.

Pages 106-107

The Original Levi's Store, New York City
Bergmeyer Associates, Architect
Birch doors, maple cabinetry and paneling: Conrad Corp. Locksets: Schlage; Arrow Locks. Granite tile: Louis W. Mian. Wood floor: Junckers. CF
recessed downlights: Indy. Accents and floods
Lightolier. Incandescent track: Juno. CFL wa
washers: Columbia. Quartz wallwashers: Elli
Cash-desk light: Lucifer. Leather chairs: de S

Pages 108-109

Bottega Veneta, Boston
Francois de Menil, Design Architect; Bergme
Associates, Architect of Record
Patch-fit display: Keer Design/Michael Schein
Sandblasted glass: PPG (Starfire); Bendheim
Architectural Glass. Paints: Benjamin Moore.
netry: Bonetto Art Legno; Leveille Woodwork
Limestone: Precision Stone. Fluorescent fixtu
Legion Lighting; Lightolier. Halogens: Presco
Display: Celestial Lighting. Seating: Knoll. Si
carpet: Karistan/Bigelow.

Pages 110-111

Sprint Spectrum, Tyson's Corner, Virginia
CORE, Architect
Laminated glass: Sumiglass. Special paint: Su
Protection Industries (Polomyx). Perforated-n
panels: McNichols. Lighting: Edison Price; Le
Progress; Lightolier; CJ Lighting.

Pages 112-113

The Rockport Store, New York City
Desgrippes Gobé & Associates, Designer
Barry Koretz Associates, Architect of Record
Tinted- and laminated-glass panels: Bendheim
Flooring: Adoquin Stone Tile. Seating: Herma
Miller. Fixtures: Lightolier. ■

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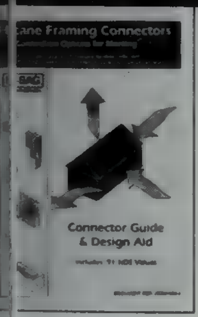
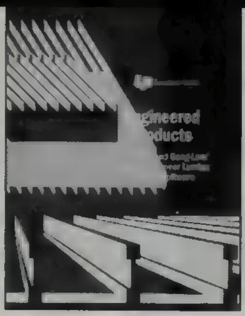
. Curved glulam beams
sign guide illustrated by church nstitutional projects discusses ructural capacity and esthetic al of pitched and tapered curved beams. Includes span tables and ical data; beams are available in symmetrical and unsymmetrical gurations. 303/792-9559. Ameri- nstitute of Timber Construction, ewood, Colo.

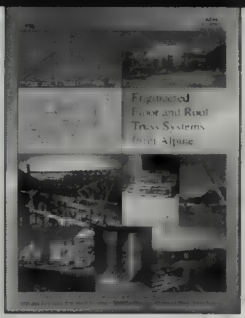
. Laminated-wood decking
y-timber roof decking laminated Douglas fir, larch, Ponderosa and inland red cedar combines arm appearance of natural wood loading capacity that withstands ng and lateral loads. A brochure dimensions, loading tables, and p suggestions; decking can be fied pre-finished. 208/337-3134. King Co., Homedale, Ida.



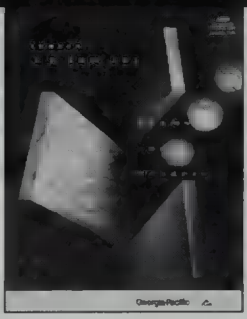
. Hurricane connectors
page connector guide and design n help architects satisfy SSTD- of the Southern Building Code, deals with uplift and horizontal s produced by high wind. Allow- esisting loads are cited with all -to-wood and wood-to-masonry ectors; explains the importance ontinuous load path. 800/526- Kant-Sag, Montgomery, Minn.



213. Engineered wood
A four-page Sweet's catalog highlights LPI joists, Gang-Lam laminated-veneer lumber, and OSB rim board, components of the maker's "Solid Start" program said to insure the long-term strength and non-squeak performance of residential floor systems. Explains Wood-E engineering software. 800/299-0028, x704. Louisiana-Pacific, Portland, Ore. *



215. Floor and roof trusses
Wood trusses are designed to meet specific span, configuration, and load conditions of residential, commercial, and industrial structures. An eight-page catalog gives span and loading data and framing details. Fire-rated systems are available; demonstration videos and CAD support offered. 305/781-3333. Alpine Engineered Products, Pompano Beach, Fla.*



217. Laminated-veneer lumber
A 1996 catalog has 24 pages on engineered-wood beams and headers, illustrating bearing details and supplying spacing and allowable uniform loading data for specific applications. Beam depths are matched with the correct Kant-Sag or Simpson connector; describes FastBeam design-analysis software. 800/423-2408. Georgia-Pacific Corp., Atlanta. * ■

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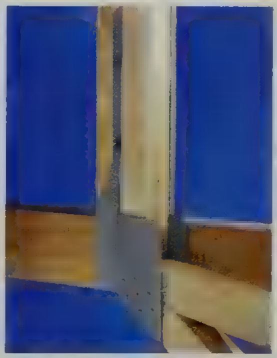

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Conference: June 17-20, 1996
Exhibit: June 18-20, 1996
Anaheim Convention Center
Anaheim, California USA

Held in conjunction with

A/E/C SYSTEMS '96

The Exhibit

xhibit Overview

'onstruction Technology 96 will feature the latest
uilding products for architects, building engi-
eers, facility managers, specifiers and contrac-
ors. The technology for all building products
hanges each day, and architects and designers
ave a difficult time keeping up with the best
roducts for their jobs. At this event, held in con-
ınction with A/E/C SYSTEMS '96, you'll see ex-
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Highlights

- See the latest building products
- Receive continuing education units
- Attend quality seminars
- Hear industry leaders
- Learn new specification techniques
- Attend user group meetings

CT 96

Who's Exhibiting (as of March 19, 1996)

A-E & C Infonet • AIA MASTER SYSTEMS • American Cemwood Corporation • American Institute of Architects • Ameristar Fencing Products ▪ Ametco Manufacturing Corporation • Anchor Fence • Andersen Windows ▪ Architectural Record • Architectural Specifier • Aperture Technologies ▪ ARCHIBUS, Inc. • Association of Construction Inspectors ▪ at (Architecture Today) ▪ Autodesk Design Blocks • Barton Industries • Brock Manufacturing ▪ Building Industry Exchange • Building Systems Design ▪ CADSPEC • Canadian Wood Council ▪ Composite Technologies Corp. • Construction Information Group ▪ Construction Specifier • Construction Specifications Institute (CSI) • Coronis Building Systems ▪ Creative Systems • C-Tech Inc. • Custom Curb • Delphi Research • Dimensional Stone • Door Hardware Consultants • Dur-A-Flex Inc. ▪ Dynamic Isolation Systems ▪ Easi File Corporation • EFCO Corporation • Engineering News-Record • Environmental Assessment Association • EPA/ Green Light Energy Star • ESP • Facility Information Systems ▪ FM: SYSTEMS • FM Link • F.W. Dodge • Freudenberg Building Systems • The Garland Company • Geberit Manufacturing Inc. • Genuine Dutch Inc. • Harris Chemical • Hayn Industries Inc. ▪ Header Reinforcements • Heritage Glass ▪ Hettinga Technologies • High Quality Tacticle System • Housing Inspection Foundation • Husky Technologies • Ideal Limited • IKG Industries ▪ Infrared Dynamics • International Facility Management Association • Innovative Tech Systems Inc. ▪ Intellibuild ▪ International Society of Facility Managers • InterPro Resources, Inc. ▪ IPC ▪ Kalin Associates • KC Metal Products ▪ Kullman Industries • Lightscape Technologies, Inc. • Loadtest, Inc. • Lyncole XIT Grounding Systems ▪ Marble Technics ▪ McGraw Hill • Medite Corp. •Mortar Net • National Association of Real Estate ▪ National Institute of Building Sciences • National Recycling Coalition ▪ NELCO Engineering ▪ Nora Rubber Flooring • Openings • Preservation Polymers West, Inc. • Pemko Manufacturing • Plumberex Specialty Products ▪ Pugliese Interior Systems • Ready Access ▪ Rockwell ▪ R.S. Means Consulting Services • Senergy Division ▪ Silikal Resin Systems • Sportlite Inc. • Stained Glass Overlay • Sto Finish Systems Division • Style-Mark Inc • Sweet's Group ▪ Technical Glass Products • Today's Facility Manager ▪ United States Aluminum ▪ US Glass ▪ Weathershield

To register free for the exhibit or for more information on the four-day Construction Technology '96 conference, call 1-800-451-1196 or fax to 1-610-458-7171.

Construction Technology 96

Exhibitor Product Showcase

Here's just a sampling of the exciting products that will be displayed by Construction Technology 96 exhibitors at the Anaheim Convention Center - June 18 - 20, 1996

American Cemwood Corp
Booth 2832

Cascade Shake, Pacific Slate and Royal Shake are color-throughout, lightweight, class "A" fire rated and impact resistant wood-fiber and cement roofing products.

Autodesk Design and Construction Library
Booth 741

CD-ROMs containing dimensionally-accurate, vector graphics and associated technical and performance data of manufacturers' building components that can be inserted into AutoCAD with the click of a button.

Hettinga Technologies, Inc.
Booth 2736

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Kalin Associates
Booth 1136

GreenSpec: Specifications for Environmental Sustainability A database of green products and practices for architects and construction professionals. Organized according to CSI Masterformat, it explains the pros and cons of the existing product or methodology and the green alternative, and provides language to include the green alternative in architectural and engineering specifications. Text and diskette.

Silikal Resin Systems
Booth 2637

Silikal Resin Systems manufactures acrylic resins systems for concrete protection. A full line of standard and antimicrobial coating and restoration systems are available. One hour cure, impact, abrasion and chemical resistant. Antimicrobial systems control the growth of a broad range of microorganisms on the Silikal surface. Materials manufactured in the USA.

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(Advertisement)

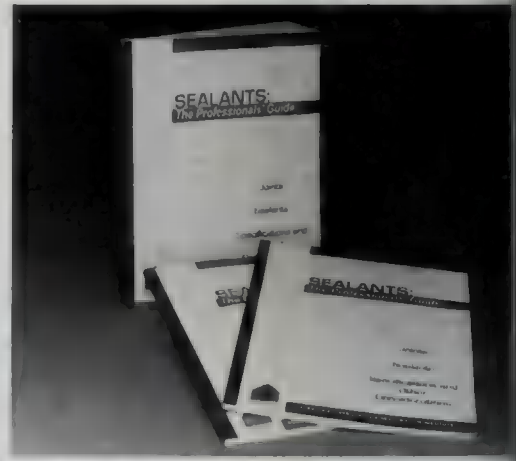
New Products

170. Secure access control

A range of high-security portals and entry systems made in Europe by Tonali, S.A.F.E. (Secure Against False Entry) access-control products are now available in the U.S., Canada, and Mexico. Designs include cost-effective swing doors and multiple-door installations for high-traffic areas. Units can be ordered with metal detectors, weight sensors, and biometric identification (fingerprint or eye-pattern) sensors. Shown here: the Portal 6000, a revolving entrance with integrated "covert" metal detection. Concealed clam-shell-type doors automatically operate to deny access to secured space when triggered by sensors, without requiring screening personnel. Finish options include enameled and stainless steel. 513/867-4000. Mosler, Inc., Hamilton, Ohio.

171. Firestop for use with CPVC piping

Flexible, water-based FS 1900 sealant meets UL 1- and 2-hr fire tests in wall assemblies penetrated by CPVC (post-chlorinated polyvinyl chloride) pipe, a material now widely used in sprinklers and tub, shower, and sink installations. The blue-gray colored intumescent sealant will adhere tightly to surface of CPVC without reaction. FS 19 can also be used with other types of plasti piping, cables, or insulated pipe, as well a with through-penetrations of standard me 908/334-8796. International Protective Co ings Corp., Oakhurst, N.J.



172. Joint-design and sealant guide

Prepared for the design professional, the SWRI handbook explains the importance proper joint design, and discusses caulk selection, surface preparation, installation and problem-solving. Price: $40. 816/561-8230. Sealant, Waterproofing & Restoratio Institute, Kansas City, Mo. ■

For more information, circle item numbers on Reader Service Card.

AIA/Architectural Record Continuing Education

earn continuing education credits for reading and nprehending designated articles in ARCHITECTURAL CORD, here's how.

e the learning objectives listed below to focus your dy. Read the article titled "Defensive Glazing," page (It's marked with the AIA Continuing Education o.) Then answer the accompanying questions and ck your answers. AIA members may fill out the self-ort form bound into this issue and send it in for two A Learning Units. You'll find this a simple way to in-ase the knowledge you need every day in your work.

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arning Objectives: After reading the article on page 34 you'll ble to:
valuate credible life safety glazing options of laminated ass.
te four credible sources for evaluating non-traditional ass specifications with regard to the post-breakage havior of glass.
etermine the reliability of glass for protecting against pact forces, specifically in discouraging criminal assault d windborne missile damage.

Questions

1. What is a possible legal consequence growing out of large amounts of windborne missile research and testing?
Answer: ______________________

2. Regarding life safety for retrofit applications, what are three considerations in specifying window films on the basis of strength for specific products and corresponding adhesives?
Answer: 1. ____________ **2.** ____________
3. ____________

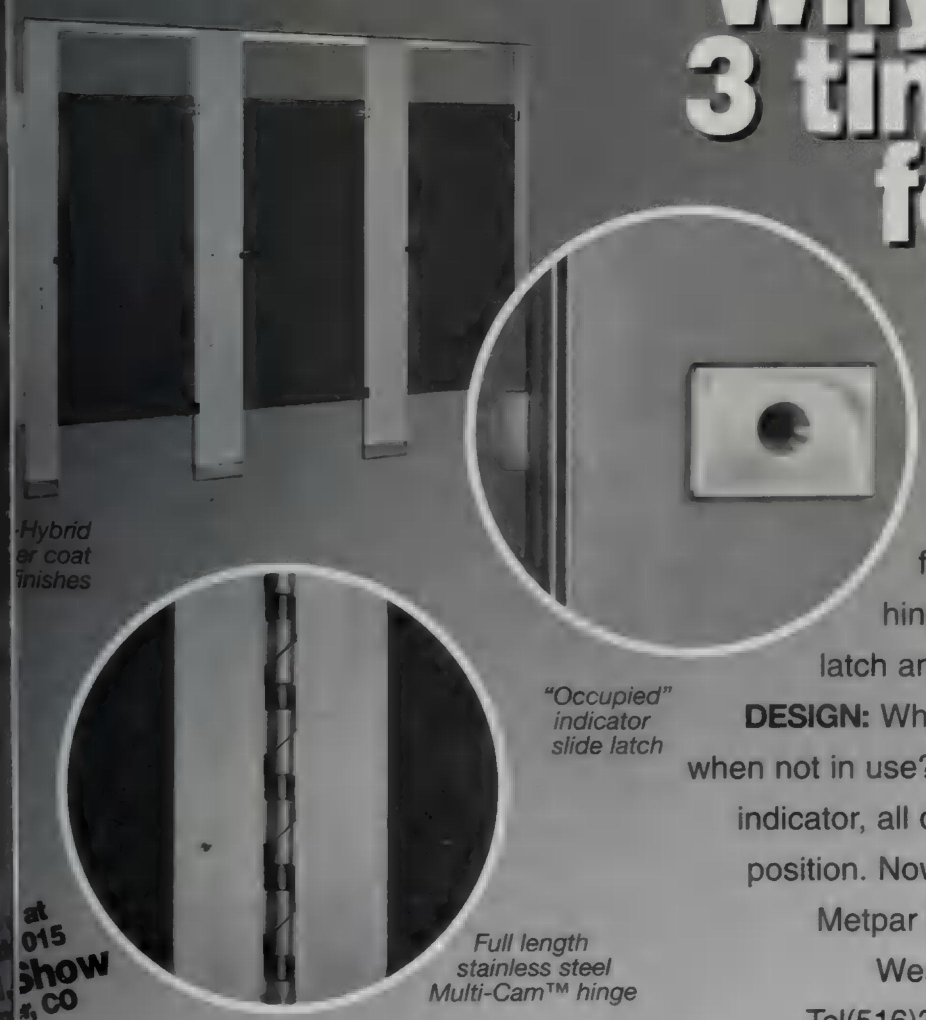
3. To protect building users from inevitable glass fracture if an explosion occurs, designers primarily rely on
Answer: a. ____________ **b.** ____________

4. What financial reasoning does one expert present for using laminated glass, despite its costing approximately 30 percent more than tempered glass?
Answer: ____________

5. List four sources for ballistic test standards for bullet-resistant glazings.
Answer: 1. ____________ **2.** ____________
3. ____________ **4.** ____________

6. What are the implications of laminated glass for designers concerned with forced entry and vandalism attempts?
Answer: ____________

For answers turn to page 137



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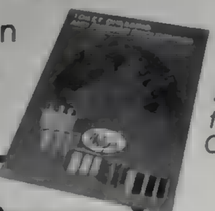

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Jack Jones, Ph.D., Vice President,
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Patricia Wood, National Performance Review

William N. Gormley, Assistant Commissioner,
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Tax Reform and Deficit Reduction:
Budget Issues for the '90s:

David Wyss, Ph.D., Research Director,
U.S. Economic Advisory Practice, DRI/McGraw-Hill

Increasing Workplace Efficiency: Job Skills for the 21st Century:

Pamela J. Kidder, Ph.D., Director, Organizational
Systems Division, Total Quality Leadership Office,
Department of the Navy

Patricia McMahon, Chief, Academic Support and
Career Planning, Internal Revenue Service

Bret Lovejoy, Executive Director, American
Vocational Association

The Internet and the Future of Information:

Michela O'Connor Abrams, Vice President,
Online Development, Softbank Corporation

Michael E. Kolowich, President and CEO,
AT&T New Media Services

The NII: Changing the Face of Communications:

Joseph Braue, Editorial Director, tele.com

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AIA/Architectural Record Continuing Education

Continued from page 135

Answers

1. One expert suggests that the increasing amount of credible research about windborne missile resistance makes it indefensible in a court of law to fail to design accordingly.

2. Among the considerations with retrofitting film are 1) different polymer bases are used for different films, thereby complicating the use of generalized study findings; 2) there are variances among manufacturing processes in imparting strength; 3) there is a shortage of data on adhesives and film and aging effects.

3. **a)** adequate frame design and **b)** the use of glazing infill materials that enhance the glass post-breakage behavior of windows.

4. Glazing may offer post-breakage performance that can save lives and prevent commercial losses by maintaining the building envelope.

5. ASTM, UL, U.S. Deptartment of State, and the National Institute of Justice.

6. Permutations of different ply laminated glass, interlayering, as well as heat-strengthening, can successfully resist main force attacks and sufficiently delay intruder entry.

To fill out the Self-Report Form go to page 139

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s worksheet should be completed and filed with each self-report form submitted to the AIA/CES. To determine the quality level of the gram/learning project you are reporting, answer the questions below. Stop at the level where "no" is the appropriate response.

ality Level 1—Both Criteria A and B must be met.

☐ YES ☐ NO Learning objectives (expected outcomes) related to the practice of architecture were established prior to engaging in this program/learning. (Please list key outcomes you expected to achieve as a result of this program.)

☐ YES ☐ NO Learning resources (people or materials) used in this program/learning project reflected an in-depth knowledge related to the learning objectives.

Human resources used

- ☐ In-house expert
- ☐ School faculty member
- ☐ Other ______________________________
- ☐ Practitioner in the field
- ☐ Independent expert or consultant
- ☐ Industry representative

Material resources used

- ☐ Journal articles
- ☐ Program handouts
- ☐ Teleconference
- ☐ On-site observations
- ☐ Books or manuals
- ☐ Audiotape
- ☐ Slides or overheads
- ☐ Other ______________________________
- ☐ Computer software
- ☐ Videotape
- ☐ Tutorial software

ality Level 2—Criteria A, B, and C must be met.

☐ YES ☐ NO Interactive (nonpassive) learning activities were a significant part of this program/learning project. (Indicate the means used to accomplish this criteria. Mark all that apply.)

- ☐ Planned Q&A periods throughout program
- ☐ Group exercises and discussion
- ☐ Interactive computer software
- ☐ Writing a paper or article
- ☐ Other ______________________________
- ☐ Simulations or role playing
- ☐ Hands-on activities
- ☐ Problem solving exercises
- ☐ Independent expert or consultant

ality Level 3—Criteria A, B, C, D, and E must be met.

☐ YES ☐ NO Some of your learning objectives were based on objective information concerning your actual learning needs. (Indicate the means used to accomplish this criteria. Mark all that apply.)

- ☐ Survey of clients, consultants, building officials, or others familiar with the work of the participants or their peers
- ☐ Informal test group
- ☐ Systematic job performance review
- ☐ Standardized test or practice audits
- ☐ Review of work or performance by expert or peer
- ☐ Other ______________________________

☐ YES ☐ NO A means of systematic feedback concerning the learning progress was used during the learning project. (Indicate the means used to accomplish this criteria. Mark all that apply.)

- ☐ Informal posttest
- ☐ Informal pre- and posttests by expert or peer group
- ☐ Postreview of work or performance by expert or peer group
- ☐ Other ______________________________
- ☐ Standardized pre- and posttests or practice audits
- ☐ Pre- and postreviews of work or performance
- ☐ Standardized posttest or practice audit

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AIA/CES Self-Report Form

This form should be completed and submitted with a quality level worksheet for each program/learning project that is not registered with the AIA/CES by the provider.

Member information

LAST NAME

FIRST NAME

MIDDLE INITIAL OR NAME

AIA ID NUMBER

Program/project title: **DEFENSIVE GLAZING**

Start date: _____/ ______/ ______ MONTH DAY YEAR   Completion date: _____/ ______/ ______ MONTH DAY YEAR

________Quality level (QL) of this program.
(Use the quality level worksheet to determine the quality level.)

________Number of hours of learning directly involved in the program.

________Number of learning units (LUs) awarded for this program.
(Quality level x hours = learning units)

Check up to three boxes below that are most closely related to your program/learning project.

☐ 01 Building Codes and Standards
☐ 02 Corporate Architects' Issues
☐ 03 Design
☐ 04 Architectural Education and Research
☐ 05 Educational Facilities
☐ 06 Environmental and Energy Issues
☐ 07 Health-Care Facilities
☐ 08 Historic Resources
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☐ 11 Justice Systems Facilities
☐ 12 Project Management
☐ 13 Public Architecture
☐ 14 Urban and Regional Design
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☐ 17 Documentation Technology
☐ 18 Construction Management
☐ 19 Facility Management
☐ 20 Public Service
☐ 00 Other ______________________________
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☐ 22 Intern Development
☐ 23 Building Technology
☐ 24 Management and Leadership Issues
☐ 25 Computing and CAD
☐ 26 Real Estate and Development
☐ 27 Financial Management
☐ 28 Marketing
☐ 29 Religious Facilities
☐ 30 Seismic and Extreme Conditions

This program addresses issues concerning the health, safety, or welfare of the public. ☐ YES ☐ NO

I hereby certify that the above information is true and accurate to the best of my knowledge and that I have complied with the AIA Continuing Education Guidelines for the reported period.

SIGNATURE

DATE

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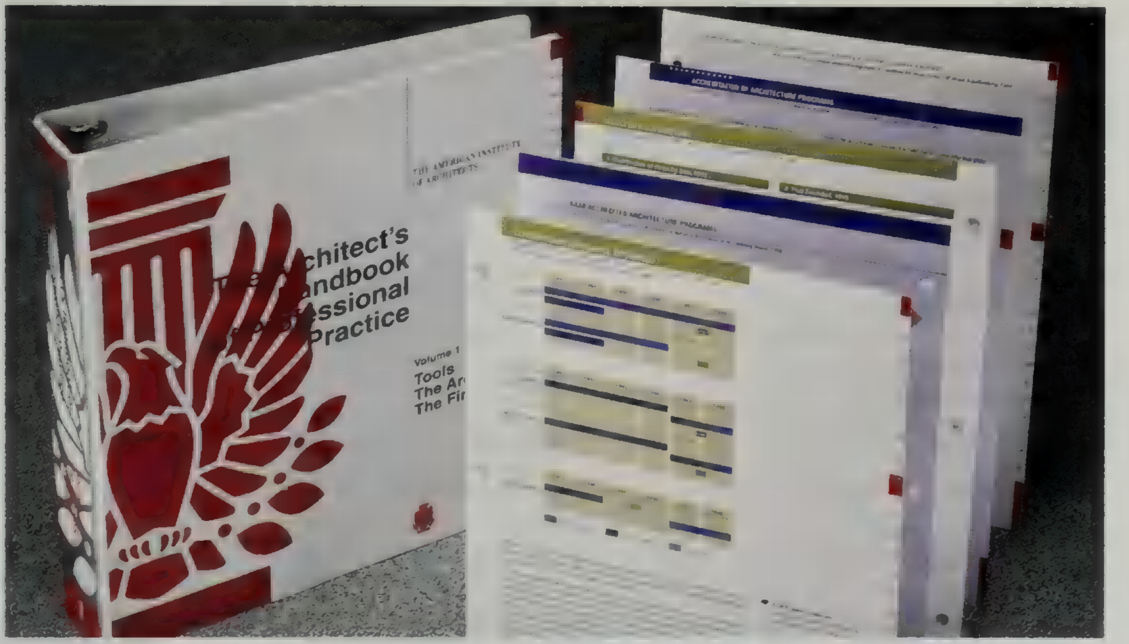
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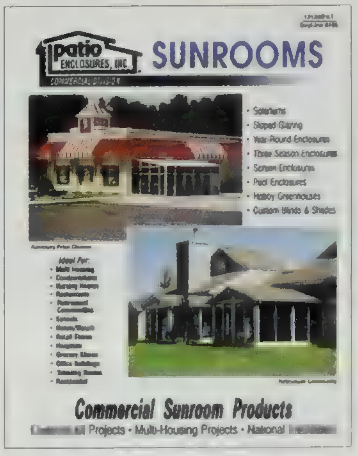

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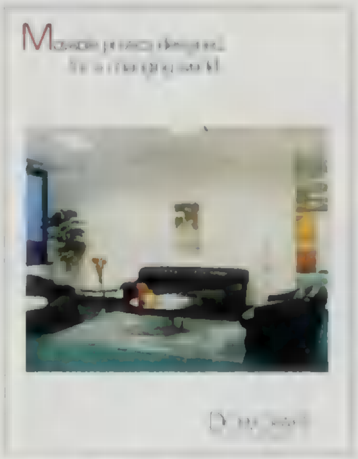

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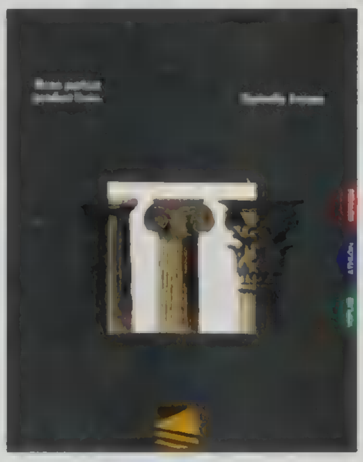

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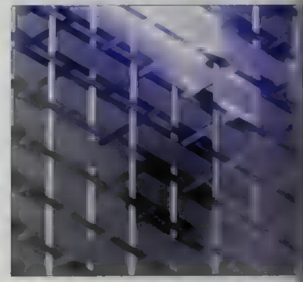

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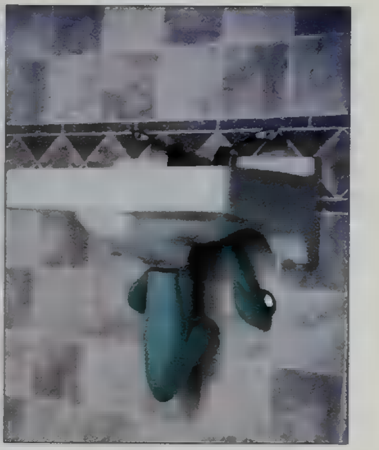

A full color catalog will explain the different Handy-Shield safety covers offered for the new or retrofit projects that need to comply with the American Disabilities Act. The specific use, sample specifications, drawings and color choice are all summarized in this easy to understand catalog.

Plumberex

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Manufacturers' Spotlight

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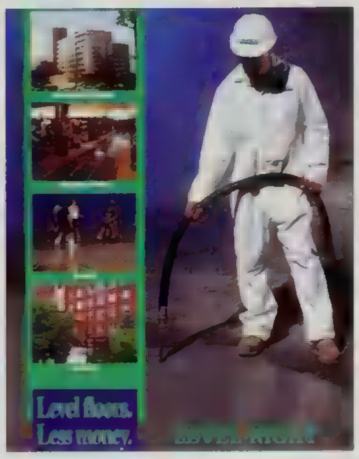

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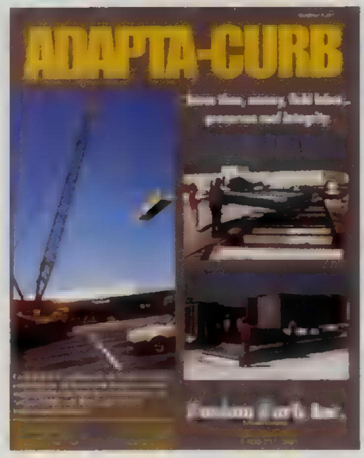

Informative color brochure illustrates the many configurations and options available with Custom Curb Adapta-Curb System that allows equipment changes without disturbing the roof. The unique system is designed for retrofit as well as new construction to add or replace HVAC units, vents, plumbing stacks, skylights and other rooftop equipment. Exclusive sloped design for positive water run-off and proper load distribution.

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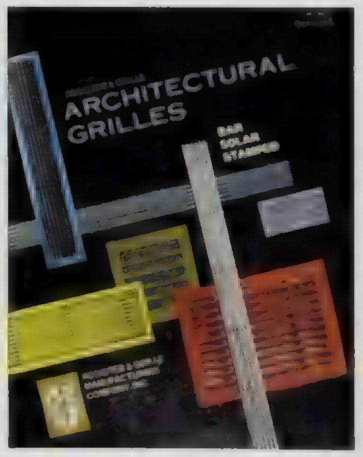

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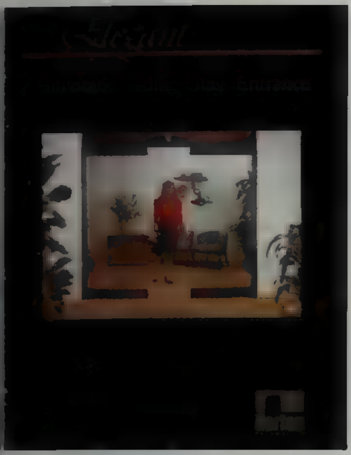

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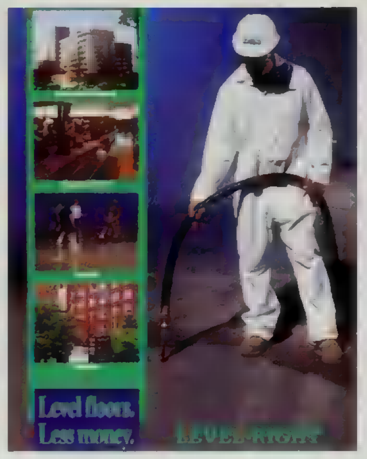

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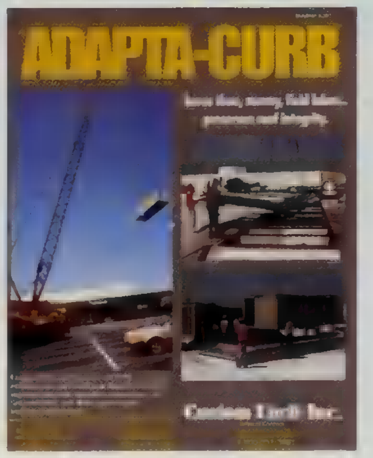

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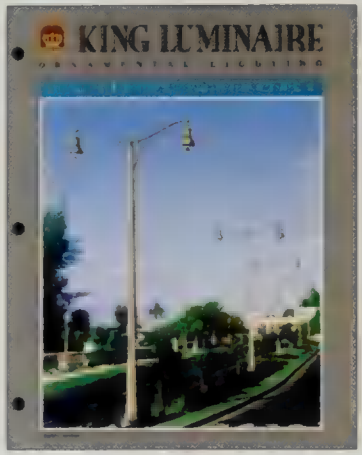

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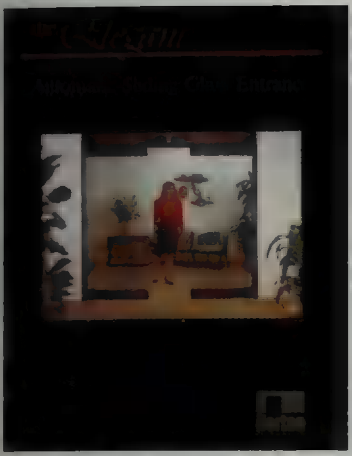

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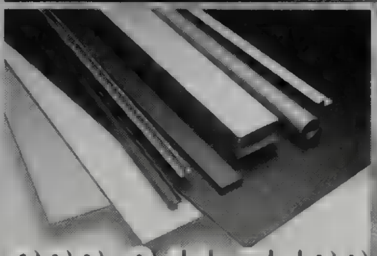

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ARCHITECTURAL RECORD (ISSN0003-858X) is published monthly by The McGraw-Hill Companies. Periodicals postage paid at New York NY and additional mailing offices. Postage paid at Montreal, Quebec, Canada. Canada Post International Publications Mail Product Sales Agreement No. 246565. Registered for GST as The McGraw-Hill Companies. GST Number R123075673.

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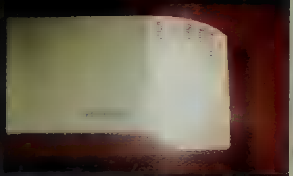

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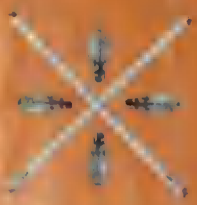

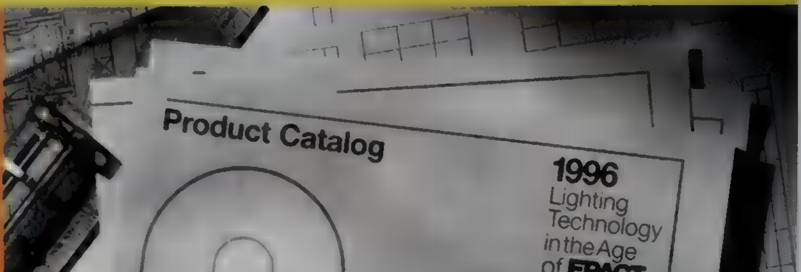

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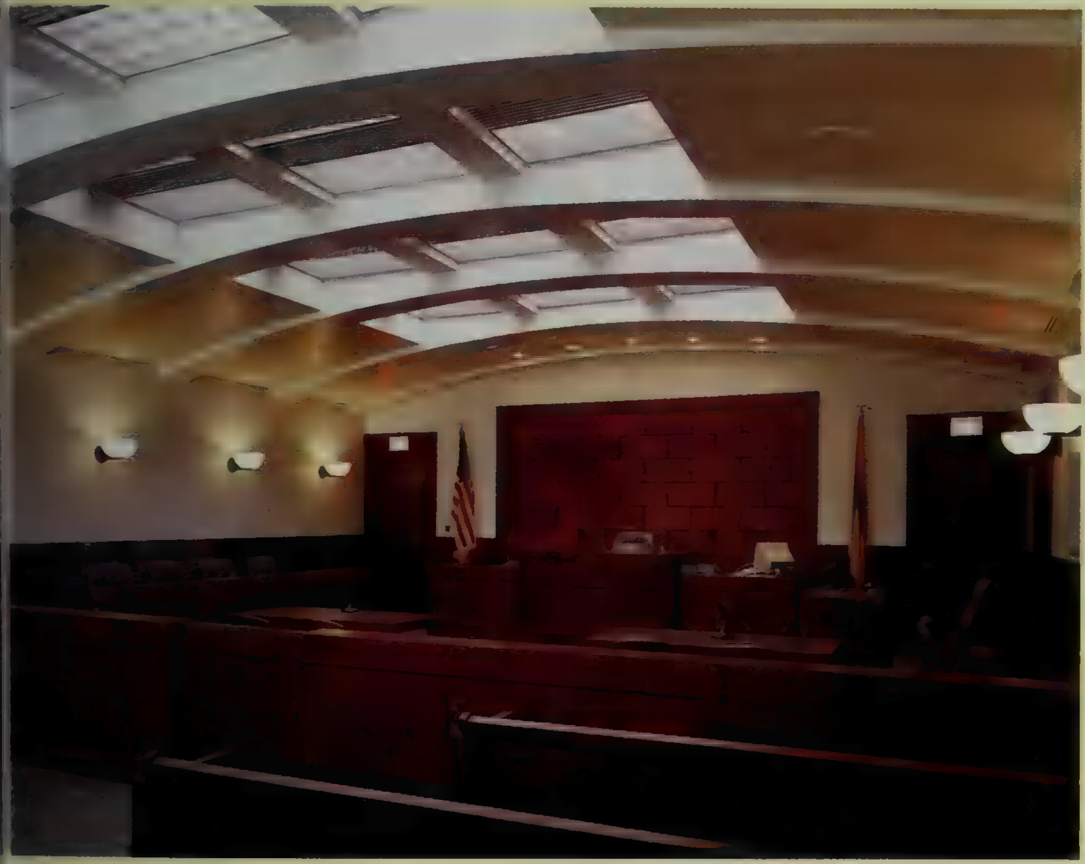


ı the architectural team of Clarke Caton
/Faridy Thorne Fraytak was selected to
n a new Civil Courts building for
er County, N. J., they were to design the
ıew court building to be built in the
in 50 years. The judicial as well as the
ıistrative communities in the county
ı great deal of attention to what the
y of the spaces would be like, including
ghting.

the facade of the building is marked by
anding classical columns and a pedi-
traditional elements of American
ıouses, the interior has a more contem-
y flavor. The public enters under the
ıent into a two-story space with a cof-
ceiling, lit by metal-halide downlights.
bby provides access to all public
s, such as courtrooms, reception and
ence areas, while a separate, secure
lor, with its own elevator and toilet core, provides circulation for judges and other court employees.

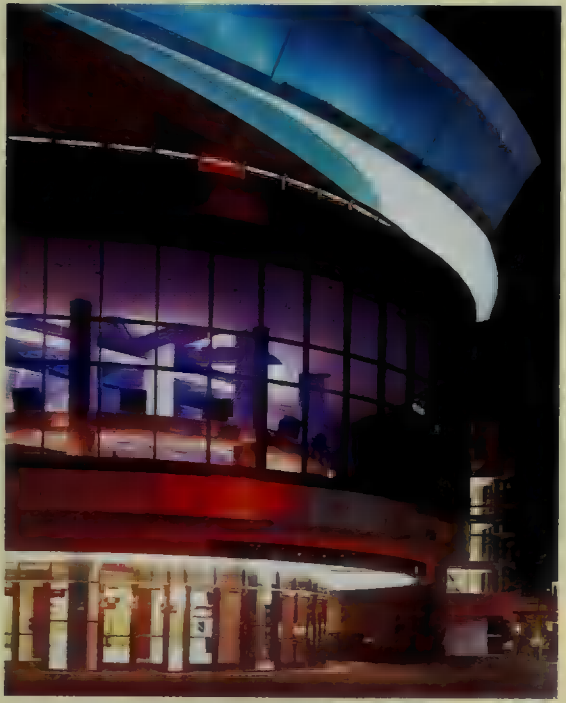
In the courtrooms, care has been taken to create a comfortable ambiance. “A civil and family court calls for a more intimate setting than a criminal court,” says John Clarke, of Clarke Caton Hintz. According to the architects, the furniture is mainly wood in the courtrooms, to suggest authority and integrity; and the ceiling is arched to create intimacy. The lighting, designed by the firm of Kelter and Gilligo, is even and unobtrusive. The vaulted ceiling contains parabolic, louvered fluorescent troffers. Decorative, semi-spherical wall sconces at regular intervals on both walls of the courtroom use compact fluorescent lamps, which add a warm glow to the space. In order to create a comfortable, almost residential atmosphere in the space, the footcandle level in the general courtroom areas has been kept at 40. ■

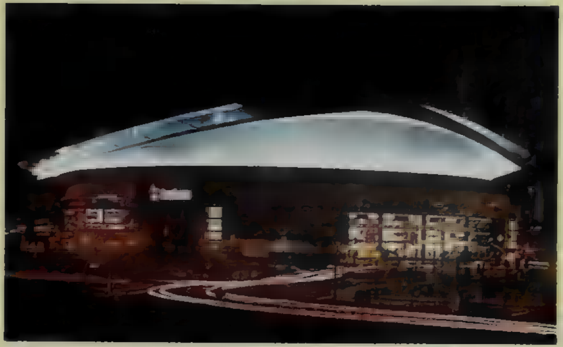
Portland, Oregon

A Crown for the City of Roses

The Rose Garden, the Portland Trail Blazers' arena, is an icon for the Oregon city. “We intended it to convey the motion, excitement, and energy of sports,” says James Poulson, of the Kansas City office of Ellerbe Becket, the architects for the building.

By day, the low, stucco building, capped by a spectacular curved steel roof, reads as a single form. By night the steel roof, lit by lighting designer Paul Helms of PHA Lighting Design, reflects light from rows of 250W and 400W metal-halide floods. These give the building's shining crown a distinct horizontal presence on the Portland skyline that can be seen from almost anywhere in the city. ■





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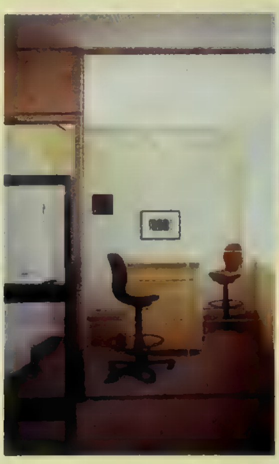
Grand Rapids, Michigan

Inching Toward the Micro-Indirect Luminaire



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Lighting designer Gary Steffy's ingenious reuse of a tiny, 2 3/4-in.-wide by 2 1/2-in.-high extrusion that has been around since the 1970s is a step closer to the micro-luminaire. When the 13-year-old Steelcase Corporate Headquarters was being renovated, the Steelcase design team wanted a lighting system that would accentuate the 9-ft, 5-in. ceiling height, and leave the open areas that make up a large part of the half-million-sq-ft space as uncluttered as possible. Accordingly, Steffy searched for a small fixture that could be hung close to the ceiling. He came up with a tiny extrusion manufactured in the 197
Peerless Lighting for use with T12 lamp
remote ballasts.

Because the extrusion was rather ineffic
in that configuration, it was neglected fo
almost two decades. Steffy tried housing
lamps and miniaturized electronic ballas
the extrusion, and succeeded in creating
lighting system that is economical, ener
efficient, and minimal. "We have used it
other projects since," says Steffy, who is
president of Gary Steffy Lighting Desig

Portland, Oregon

New Oregon Administrative Rule Requires More Light, Less Glare in Nursing-Home Lighting

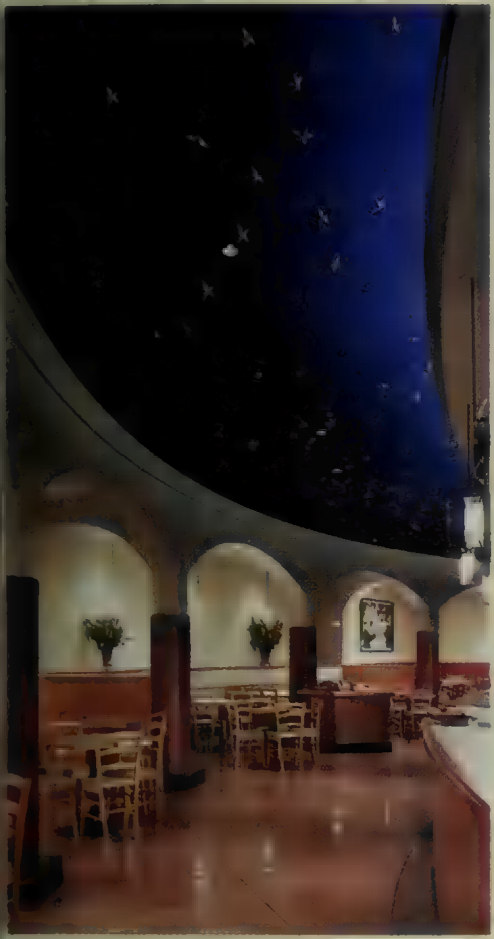
© Steve Cridland photos

Illumination levels in most public faciliti
are based on the visual abilities of the y
This is quite inadequate for nursing hom
where the average age is 86. Oregon is t
first state in the country to specifically
address the issue, adopting a landmark
that deals specifically with vision for the
elderly. Passed on January 1, 1994, the
Oregon Administrative Rule requires
minimum footcandle levels and non-glar
producing luminaires in nursing homes.
code specifies not only footcandle levels
various areas of the home, but also disti
guishes between ambient and task lighti
In corridors, for example, 30 fc of ambie
light are specified, 50 fc in dining areas ,
75 fc of task light in residential rooms.

Robert Dupuy, of Interface Engineering
along with Eunice Noell of the Center o
Design for an Aging Society—who both
helped write the code—recently redesig
the lighting for the Robison Jewish Hon
(left), in Portland, one of the first nursin
homes in Oregon to comply with the nev
code. The design utilizes a combination
light valances, pendant-indirect luminai
and surface-mounted indirect luminaire
T8 fluorescents and large compact fluor
cent lamps operating on electronic balla
Indirect, surface-mounted luminaires w
used to light the 8-ft-wide corridors, an
pendant indirects in the living rooms. ■

ramento, California

e Energy, Color, and Light the Sky at Sunset



Located in the Sunrise Mall in Sacramento, Cafe Tutti offers shoppers a sanctuary from the bustle of the main drag. Drawing upon the outdoor nature of the California lifestyle, designer, Gary Orr, of the Orr Design Office, decided to depict the sky at sunset. The space had no access to daylight, and Orr felt that artificial daylighting techniques would not adequately convey the intensity and subtlety of California twilight. "The energy, color, and magical light of the sky at this short but powerful moment of the day—sunset—was my inspiration for Cafe Tutti's ceiling," says Orr.

The effect was accomplished by creating a large, crescent-shaped, 14-ft, 6-in. high ceiling area that was painted a deep blue, and lightened on one edge by a row of single 40W, full-spectrum fluorescent lamps. The area was then filled with hundreds of suspended 2-to 3-in. gold-foil-covered stars, angled to reflect the light from the soffit source. Orr also distinguished Cafe Tutti by his inventive use of everyday materials—the stars are made from fireproofed papier-maché Christmas-tree ornaments. ■

las, Texas

gh- and Low-Tech Mix for an Original claration of Independence Print

e 200 copies of the Declaration of Inde-
ence printed in 1776, only a handful now
ve. Architect Max Levy had the privi-
of creating a permanent display for one
se in the Dallas Public Library. With
eative mix of light and shadow, high-tech and low-tech, Levy has created a reverent, romantic ambiance, well suited to its subject.

The document case incorporates humidity control, and cool, ultraviolet-free fiber-optic lighting to illuminate the fragile document itself. The document itself is protected from incoming light by a curved maple wall, its outside face decorated by 13 small "star" sconces. These recall the original colonies—and light the visitors' way into the exhibit. Across from the document are four information panels whose text is laser-cut through thin sheets of hand-finished stainless steel. Each steel sheet is then backlit by a single 6W lamps(left), which approximates the glow of a candle. ■

Books

Light Revealing a Delight For the Eyes

Light Revealing Architecture, *by Marietta S. Millet. New York: Van Nostrand Reinhold, 1996, 183 pages, $59.95.*

Reviewed by Charles Linn

Marietta Millet's new book is about light, yes, but more than this, it is about the awesome power of light in architectural space. I could tell right off because the first chapter didn't begin with a diagram of a cross-section of the eye, as do most books that are supposedly about lighting and architecture but are really about how far apart to space light fixtures. There is a big difference. Chapters such as "Light revealing experience," and "Light revealing meaning" are lavishly illustrated with beautiful photographs from sites all over the world and pen-and-ink drawings by Catherine Jean Barrett. Each illustrates some way in which light can be used in architecture to deepen human experience. Even the text is, in places, lyrical.

The chapters that make up the book conclude with a photographic tour of a building that exemplifies the best of what that chapter has to teach. Millet chose four buildings legendary for their inspired use of light: the Museum of Anthropology at the University of British Columbia in Vancouver, B.C., by Arthur Erickson; the Monastery of Sainte Marie de La Tourette in Eveux-sur-l'Arbresle, France, by Le Corbusier; the Mount Angel Abbey Library, Mount Angel, Oregon, by Alvar Aalto; and the Kimbell Art Museum in Fort Worth, by Louis Kahn. *Light Revealing Architecture* is simply an inspiration. ■

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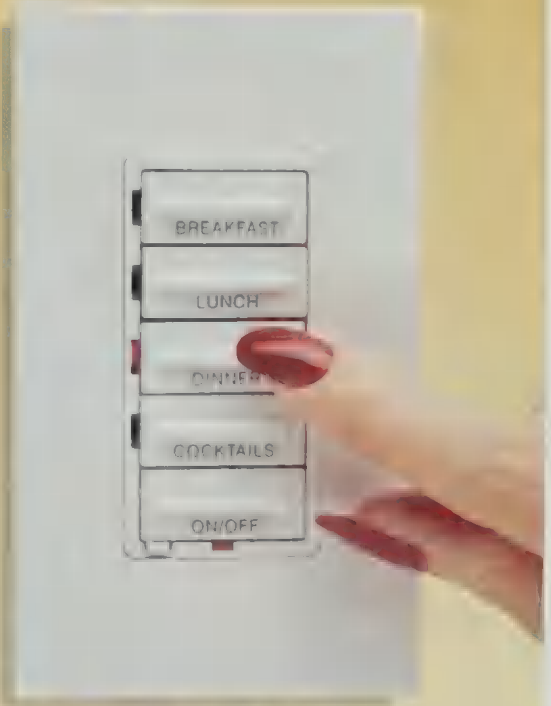

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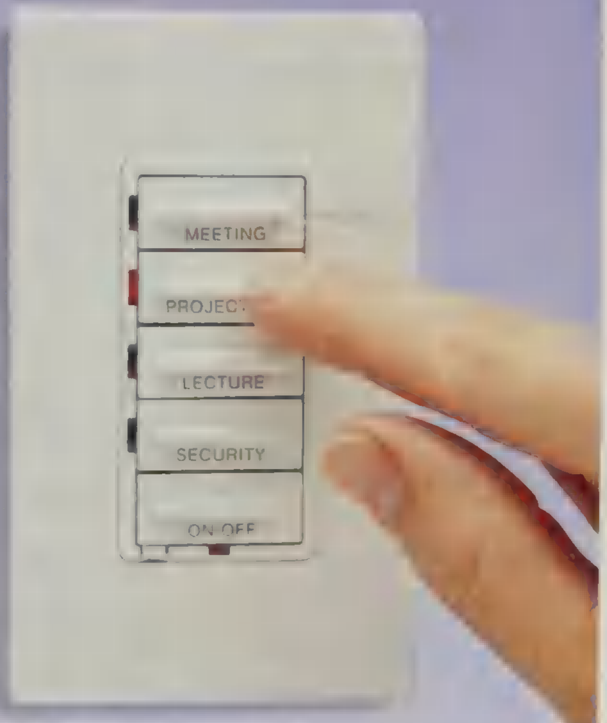

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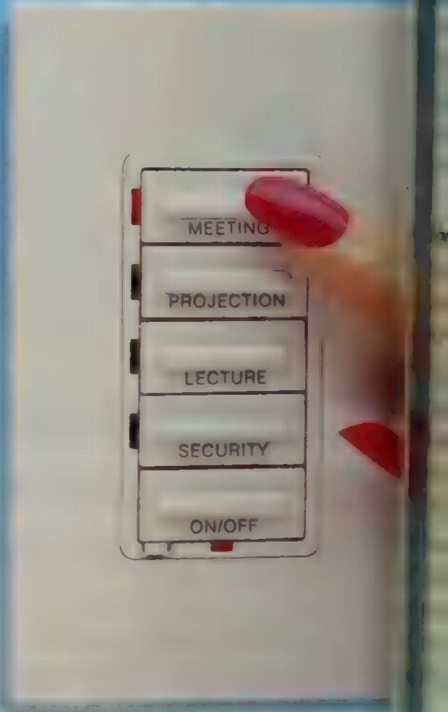

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·indsay Audin

as lighting technology has advanced
lly in the last decade, so have the ways
an now obtain and digest information
t it. Central to this change is the advent
-line data systems, known more com-
y as the Internet, or "the net." Through
hting information may be accessed
st instantaneously, just by pushing a few
uter keys. Lighting practitioners need
aware of this option, if for no other
n than to keep current with their com-
ion.

Internet grew out of efforts to connect
rch laboratories to allow data exchange,
didn't really grab national attention
its more glitzy offspring, the World
Web, was established as a commercial
um. At this point, roughly 80 percent of
nternet action is on the Web.

ine 101

hose readers who have been in a coma
e last year, the Internet and on-line ser-
are electronic libraries accessible to any
quipped with a "modem," which trans-
bytes over standard phone lines. They
ogether many computerized information
rces, each with a distinct address.
ugh the use of readily available software
ams (called "browsers"), one can visit
addresses, or use a "search engine" to
the sites where a particular word, or
of words appears in a site's own
iption.

users initially go on-line through
nal consumer-oriented services such as
ica On-Line, Compuserve, or Prodigy.
monthly fee, such services provide
rous data sources (such as magazines,
ssion groups, and catalogs) as well as
net connections and private e-mail
sses. Chronic net surfers often gradu-
local access providers that allow access
he Internet for a flat monthly charge,
ck such pre-packaged options.

When using your home phone line, don't forget that the phone company is still clocking the usage, so be sure your on-line service is accessible through a local number. If you expect to surf a lot, look for a telephone rate that offers unlimited local calling for a flat monthly fee. Recent deregulation of phone service is fostering such options to keep you as a customer, so use one to surf guilt-free.

The search for the holy URL

Each Web address is listed by its "Uniform Resource Locator" (or URL, pronounced "earl"). That's geekspeak for a directory, or sub-directory, that embraces the file containing the data you want. Each starts with http://, a computer incantation calling forth the HyperText Transport Protocol, which gets the process moving. If you're using a service such as America On-Line, simply enter the URL as a "keyword" and hit ENTER on your keyboard. When searching for a particular topic, use a browser (I recommend Netscape Navigator) for better performance. More than this you don't need—and don't want—to know. As of early 1996, there were over 41-million Web sites, and the number is increasing exponentially. Professionally produced sites have a "home page" that serves as a welcome mat and table of contents, greeting and informing you of what goodies it contains. Starting at a home page simplifies exploration, but isn't essential.

Using one of the better search engines (Alta Vista, by Digital Equipment Corp., http://www.altavista.digital.com), I found nearly 400,000 sites when I typed in "light." Unfortunately, that list also included numerous reviews of light beers and various religious references. Searching "lighting" narrowed the field to about 70,000 entries. Focusing on "lighting products" finally yielded a manageable 600-topic summary.

In my search, I discovered (among many other things) an amazing array of lighting topics:

◆ A catalog of a vendor's lighting products:
http://www.freedom.lm.com/freedomlight.html
◆ The Light Database Filer (interesting general stuff here):
http://www.torn.ktts.kharkob.ua/ldbf.html
◆ An index of light bulb jokes:
http://www.crc.ricoh.com/~marcush/lightbulb/lbsearch .html
◆ A company promoting its neon capabilities:
http://www.zeon.com/
◆ Training courses in fiber optics:
http://www.commnews.com/litebrig.html
◆ A list of technical research articles:
http://www.lbl.gov/Science-Articles/research-review/Highlights/1993/bright-light.html
◆ Lightolier's new Web site, TechExpress
http:/www.lightolier.com

Three lighting sites are found within the AECNET, the electronic network of architecture, engineering, and construction.

◆ The Illuminating Engineering Society home page:
http:/www.aecnet.com/IES/ies.home/html
◆ The Lightnet home page, which features product information, even a listing of job opportunities:
http:/www.aecnet.com/lightnet
◆ The International Association of Lighting Designers home page:
http:/www.aecnet.com/IALD/iald.html

Then I found the InterLight, the mother of all lighting sites at http://www.light-link.com/. Supported by several product vendors, InterLight's site contains articles, product reviews, studies, and other information relevant to the lighting trade. For sheer breadth and depth, this site is worth an occasional visit by any lighting professional but, as always, use caution and verify any product-performance claims.

Returning to the screen of the crime

Once you find a site you'd like to visit again, use your on-line software to store those overly long URL addresses to avoid re-typing them (Netscape calls it "bookmarking"). A list of readily understood names soon will be created; clicking on a name in the list will send you directly back to a site.

The Internet also contains many non-Web locations that provide useful information and contacts. To get familiar with the options, forget about the phone bill for the first month and just wander through the Net a few hours each week. Prepare to be surprised. Surf's up! ■

*say Audin is energy manager for
nbia University and lighting research
ltant to E-Source, a Colorado-based
y consulting group.*

LV, CFL, HID, Even UV: Something for Everyone

350. Big light, small package

Litecontrol's Arcos takes advantage of a new ultra-thin electronic ballast to pack up to three T8s (or two CFLs) into a housing barely 2 1/2-in. high. A new support-plate design simplifies connecting luminaire sections. The streamlined housing comes in 23 colors; a data sheet gives full lamping, photometric, and spacing information. 617/294-0100. Litecontrol, Hanson, Mass.

351. Shallow-globe pendant

A new Litedisc configuration, the Legacy comes in three diameters up to 41-in., lit by three to six T5 lamps; a 2D fluorescent illuminates the fixture's acrylic bowl. Efficiencies are said to be superior for a non-linear pendant: 76 net effective lumens per watt. Legacy can be mounted within 24 in. of the ceiling; edge designs include a bullnose and a more traditional "Chippendale" style (pictured). 714/549-9765. Lam Lighting Systems, Santa Ana, Calif.

352. Round-aperture fluorescents

A new downlight, Triples are said to maximize the performance of triple-tube CFLs, such as those from GE, Osram/Sylvania, and Philips. Available in 6-, 7-, and 8-in. apertures, the new luminaires combine low-brightness and wallwash options in an energy-efficient package, and can replace one-by-four and two-by-four troffers. The three housing sizes take CFLs up to 42W; there are three reflector finishes and three wallwash styles. 212/838-5212. Edison Price Lighting, New York City.

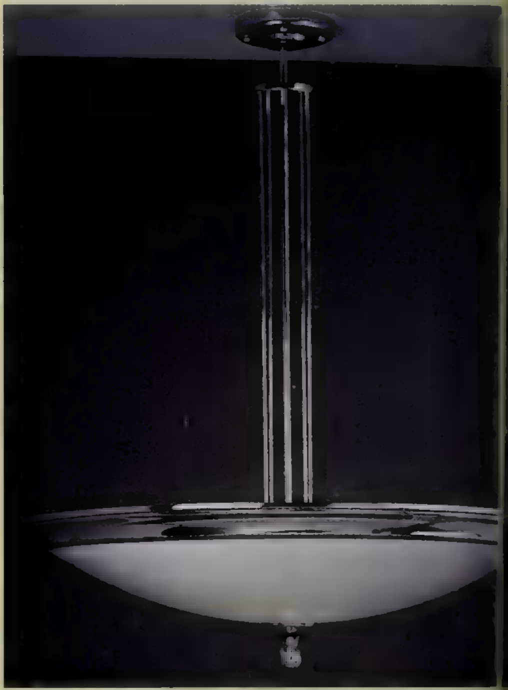
353. Pfister sconces

Baldinger is making extended-profile and ADA-compliant wall-mounted lighting under license from the estate of architect/designer Charles Pfister. The designer thought of these sconces as "hands" offering light to a space. 718/204-5700. Baldinger Architectural Lighting, Inc., Astoria, N.Y.

354. Large-format pendant

Available in 24- and 30-in. diameters, the DP-87 pendant can be specified with top and bottom rings in combinations of aluminum, brass or chrome; diffuser is acrylic. Lamping options include four 39W biaxial lamps [illegible] a 38W 2-D. Matching ceiling lights [illegible] available. 414/458-2184. [illegible] Lighting, Sheboygan, Wis.

350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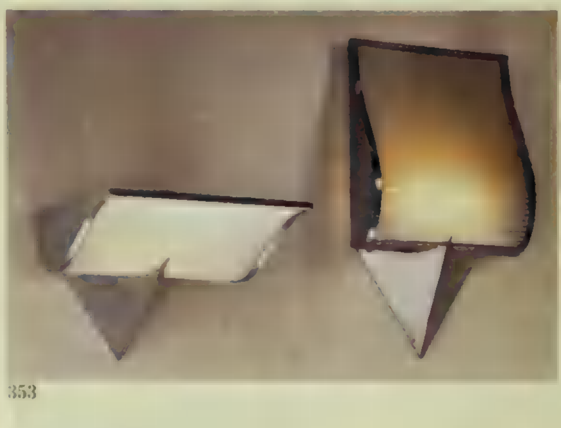
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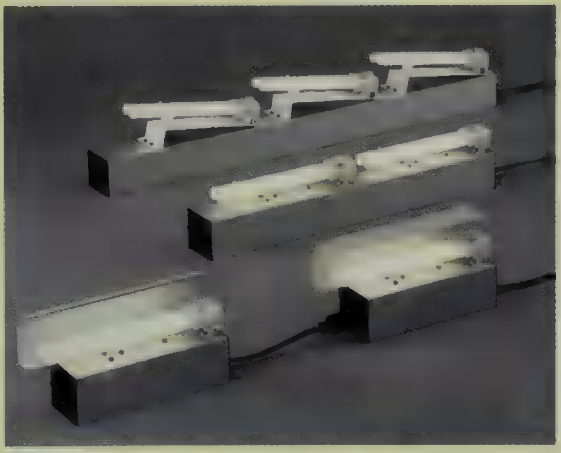
354

w lighting fixtures can be energy-efficient, adaptable, iting—some even all at the same time.

359

360



361

355. Low-voltage rail system
Shown here with the Sprocket fixture, the TwinRail system pairs gold-tone or chromed rails that can be configured in straight-edged or curving shapes. Lamphead takes MR16s; aiming handle is the Jazz glass accessory. 312/252-0008. Tech Lighting, Chicago.

356. Compliant sconces
New to SPI's already-extensive line of low-profile fixtures for corridors and small commercial spaces, Phaces are scoops, quarter-spheres, triangles, wraps (shown), and wedges made of metal, acrylic, and alabaster. A two-part reflector is designed to get the widest, most economical light spread from halogen, metal-halide, or CFL sources. Color catalog offered to specifiers. 414/242-1420. SPI Lighting, Mequon, Wis.

357. Special-effects UV lighting
Fluorescent tubing is among the UV-sensitive materials that let lighting designers create unique, exciting environments illuminated by long-throw black (ultraviolet) lights. 310/398-3831. Wildfire, Inc., Culver City, Calif.

358. Multiple-option floodlights
The 71/7200 floods may be specified for sources up to 1000W, each with a choice of eight beam spreads. A twin reflector permits two aimable optical systems in a single housing. 818/362-9465. Hydrel, Sylmar, Calif.

359. Lighting for books or boots
New LSL Series luminaires are designed to push light down the face of library shelving or retail display without creating hot spots at the stack top. Fixture may be recessed or suspended. Catalog gives photometrics, lamping, and finish options; fax 509/921-7539. Columbia Architectural, Spokane, Wash.

360. Low-height bollards
With the pointed top of new Linear Element landscape fixtures, sturdy bollards come in two sizes (the larger is 12-in. dia by 22 1/2-in. high); custom color can be ordered. 805/684-0533. BEGA, Carpinteria, Calif.

361. Modular cove fixtures
Extruded-aluminum profiles can be cut to spec in lengths of from 1 to 8 ft, corded or hard-wired. Takes most popular CFL lamps. 203/776-5577Electrix, Inc., New Haven, Conn. ■

Lighting Business Sparkles in '96

IALD firms account for the specification of betwe 45- and 55-million sq ft of lighting annually, according to their latest member poll.

By Lee Waldron

The 1996 annual International Lighting Designers Association Business Poll indicates that the steady growth of business which started in late 1993 will continue this year, and the membership remains optimistic for the foreseeable future. Thirty-four percent of the poll's respondents expect an increase in income this year, up from 25 percent in 1995. While there are perhaps thousands of lighting specifiers, the 500 members of the IALD are recognized by their consistently high lighting-design standards. The organization has been instrumental in the promotion of good lighting design as a necessary part of the architectural process.

Poll results: office size

Office size remains small when compared to the size of firms during the booming construction market of the late 1980s. Over 60 percent of the businesses are one- or two-person firms. Recently, new firms have begun to spring up as individual designers have struck out on their own from larger practices, either by desire or necessity. The existing firms have remained lean—29 percent are staffed by between four and eight people. The strength of the market has 38 percent of the firms anticipating increased staff in 1996.

Lee Waldron is president of Grenald Waldron Associates, and past president of the IALD.

While small in size, IALD member firms with eight employees or fewer specify lighting for upwards of 25 million sq ft of construction annually. The remaining 10 percent of the association's firms, with staffs of nine or more, specify products for another 20-30 million sq ft.

Accompanying this growth in business has been a migration of firms from the eastern half of the U.S. to the West. The number of firms reporting from the East has decreased by 15 percent, down from 40 percent over the last three years to 25 percent. The difference has been offset by a gradual increase in western firms reporting, from 30 percent up to 33 percent. In addition, this is the first year that a significant number—12 percent—of the firms responding were from Europe.

Spanning the cities, the globe

Global construction has aided the influence of IALD members throughout the world. Many lighting firms are not limiting their projects to the cities where they are located—in fact, growth in the contracting of lighting design services is reported in every region of the country. Lighting designers continue their involvement in the Far East. In Asian and Australian countries, one-third of the lighting firms report have consulted on projects, up from only 17 percent in 1993, but trailing the construction boom in that part of the world. Twenty-five percent of IALD firms report European work, although this figure may b partially skewed due to the first-time response from the IALD's European designe

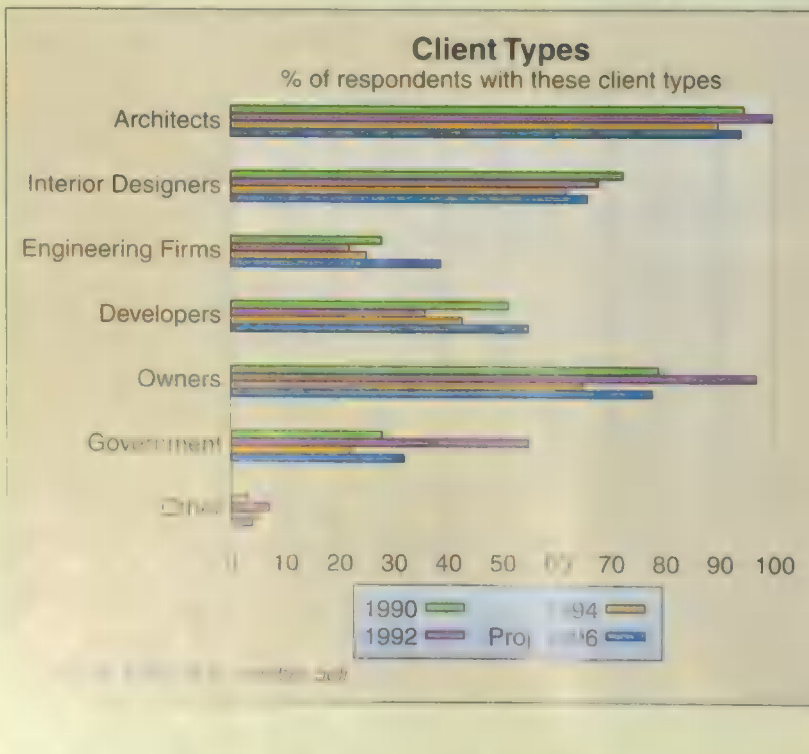
What they do: the project mix

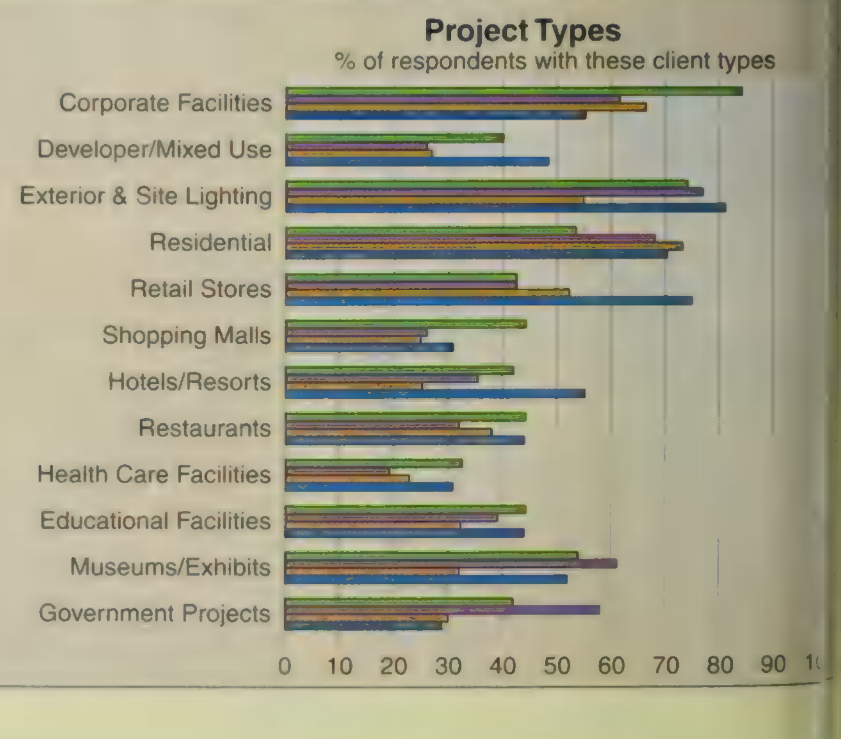
The IALD members' wide project mix indi cates that a broad variety of project types require input from lighting designers. In tl chart below, the percentage of projects sho strength in exterior lighting (at 80 percent and residential projects (at 71 percent). Retail stores remain steady. However, wor with developers seems to be on the rise, u from 28 percent in 1994 to 43 percent in 19 This is also true of shopping malls (up to 3 percent from 25 percent), hospitality (up t 49 percent from 25 percent), health care (u to 33 percent from 23 percent), schools (u 47 percent from 33 percent) and museums (up to 45 percent from 33 percent).

Work on government projects appears to fluctuate among the IALD members, whe it was down to 25 percent, but they expect to bounce back to the 30 percent level. The is also a softening of consulting work in co porate facilities (down to 61 percent) whe less work is projected for 1996.

The amount of work commissioned by arc tects is predicted to rise above last year's levels, as it has with interior-design firms. However, architectural firms still hire ligh

Continued on page 38





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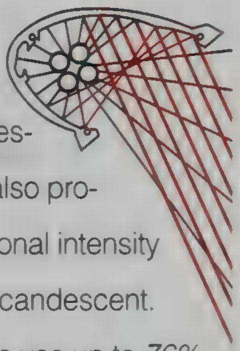

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ARCHITECTURAL RECORD LIGHTING

Good Lighting a Key Component of Renewal for Public and Private Spaces

The stories that follow share a common thread: good lighting has a key role to play in the renewal of public and private spaces, and it can be effective indoors and out.

Our story on the redevelopment of two aging retail malls (page 24), the Eastridge Mall in San Jose, and the Coronado Mall in Albuquerque, discusses how mall spaces were once routinely underlit to make storefronts more attractive. After years of use, and finish and luminaire depreciation, not only were the malls underlit, they were under appreciated. New lighting, finishes, and amenities have rejuvenated them, and brought new profits. An important point that should not be missed is that much of the wattage for the new lighting features was "harvested" by replacing inefficient light sources with new ones.

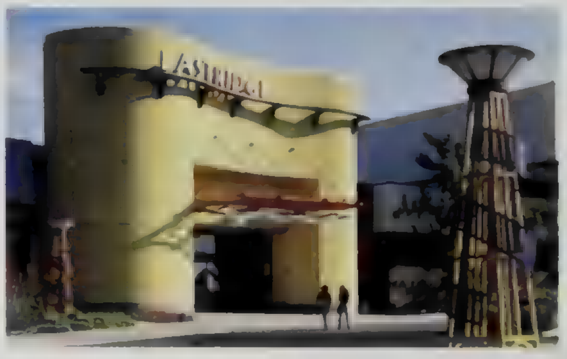
The relighting of Second Street in Phoenix (page 28), tackles a similar problem, but on a larger scale. Here the edge of a downtown was already defined by such significant structures as the America West Arena and Civic Center. Uncomfortably dark at night and losing business, the downtown association put on not only a friendlier, safer face through new lighting towers, but a new civic identity—all the while complying with Phoenix's Dark Sky Ordinance.

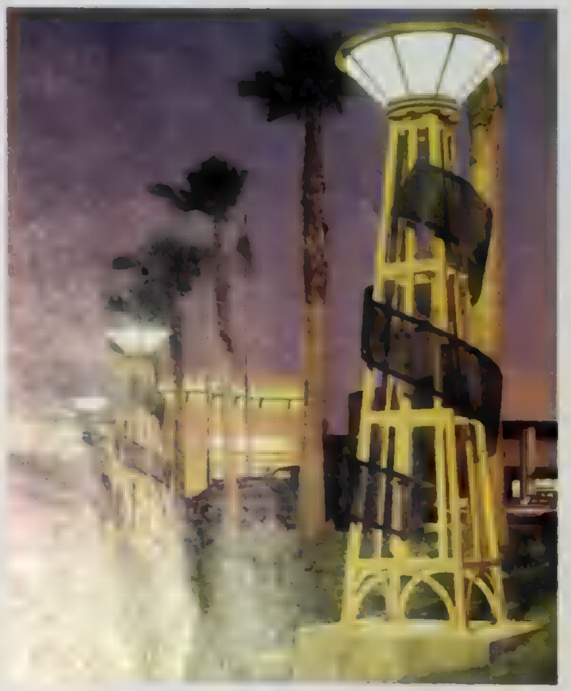
Also, in honor of LightFair's appearance in San Francisco this year (May 14 through 16), we feature one of that city's memorable new architectural projects, One Market Street Plaza (cover and page 30). Here architect Cesar Pelli has anchored the public spaces of a 1970s building complex down on its luck with wonderfully complex steel structures, brought to life after dark with lighting designed by Cline Bettridge Bernstein. The shimmering plaza tower is already an accepted symbol of renewal on the San Francisco waterfront. *Charles Linn*

nufacturers' Sources
ed on page 38

Lights! Action! Shopping!

Built with the understanding that malls function as the village squares of suburban America, the megamalls of the late 1980s and early 1990s incorporate atriums, plants, art, theatrical lighting, and other entertainments to create a sense of space and identity, and to bring the shopper a sense of added value. These new malls have, in turn, spurred a spate of renovations in malls built in the 1960s and 1970s, which have now begun to look outdated and plain. As demonstrated by the two shopping malls featured here, the Coronado in Albuquerque, New Mexico, and the Eastridge Mall in San Jose, California, lighting is usually a high priority in the renovations. Advances in lighting technology made in the intervening years make for brighter, energy-efficient spaces with a more accurate color rendition. And, in large public spaces like malls, lighting is an affordable way to make a splash.





Bright colors reminiscent of Salinas Valley fruit labels, glowing lantern-towers, and an undulating wall add an identity and impart a festive air to the entryway of the Eastridge Mall (right), which continues in the center court (opposite) with a series of torchières hung with bright, spot-lit banners, pendant downlights and accents.

Eastridge Mall
San Jose, California

Constructed in the early 1970s, the Eastridge Mall was set back
the road, almost buried behind a thick grove of eucalyptus trees
presented a rather dull, monolithic face to shoppers when they f
did find it.

In a creative renovation that demonstrates the power of lighting
signage, architects ELS/Elbasani & Logan Architects, working
the Los Angeles office of Horton◆Lees Lighting Design and a t
designers, artists, and fabricators, turned the mall into a colorfu
festive place that is recognizable from a distance.

A series of lantern towers, which draw the inspiration for their
from a landmark electrical tower in downtown San Jose, leads t
shopper into the mall. Visible from a distance, the painted-steel
towers—custom-designed by the architects—are lit with 70W m
halide fixtures recessed into the concrete under each tower, and
26W quad compact fluorescent lamps in the crown. An undulatin
enlivened with tall steel letters and lit by warm-white neon now
sents a cheerful facade that welcomes shoppers into the mall.

In the interior, a combination of a hexagonal grid, a confusion of
bridges and ramps, and frequent level changes resulting from a
foot rise across the mall, made shopper orientation extremely di
In order to simplify the circulation without prohibitive cost, EL
gathered the level changes together in the center of the mall to
a central plaza and amphitheater, fashioned a new, enlarged ele
and created a continuous curving ramp that leads directly from
plaza to the west court.

The skylights, at regular intervals along the mall, have 400W m
halide downlights, housed in three-, two-, and one-tier hanging
that provide sparkle and scale. A blue compact-fluorescent lam
tucked into the top of these fixtures approximates an evening s

The circulation paths are further defined by a series of torchièr
along the edges of the balconies. Hung with translucent banner
spotted with 75W MR16s, and accentuated with warm, fluoresc
lamps, the torchières lend a colorful, festive air to the large mal

Credits
Eastridge Mall
San Jose, California
Client: *Land Lease Development U.S./The Yarmouth Group*
Architect: *ELS/Elbasani & Logan Architects*
Lighting Designer: *Horton◆Lees Lighting Design Inc.—Teal*
Brogden, design principal; Susan Porter, project director
Electrical Engineer: *The Engineering Enterprise*

CINDERELL
LINENS &

Coronado Shopping Mall
Albuquerque, New Mexico

Some early malls were built with the public spaces outside the stores deliberately underlit, for the purpose of drawing attention to the storefronts themselves. That was the situation lighting designer Craig Roeder encountered at Coronado Mall, where a sea of 175W mercury-vapor lamps installed around islands of geometric drywall forms lit the space. Originally, plans for the renovation of the mall included a new ceiling. Roeder disagreed. The Dallas-based lighting designer told the client that the lighting, not the ceiling, was the problem.

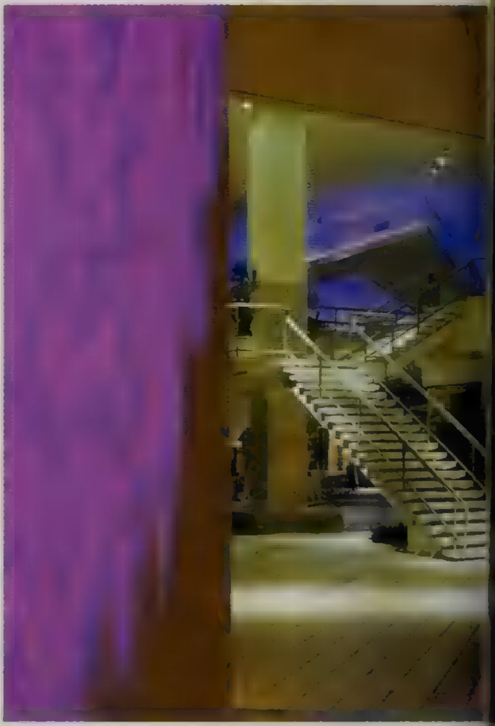
"Most malls have these 2-by 2-foot ceiling tiles. Here we had these incredible drywall sculptures. I did not think they were horrible. I thought they were beautiful," Roeder says, "They were just dark." Accordingly, he proposed that instead of demolishing the hated ceiling, he actually would accentuate it with lighting. It was not very difficult to win the client's approval, especially since the solution he proposed would result in considerably less expense.

To begin, 4-inch metal coves were run like gutters along the side of the soffits in the ceiling along the sprawling mall. These are housed with 60mA neon which now washed the ceiling with waves of color that range across the entire color spectrum. At night, more drama is created at the ceiling level. The three skylight areas incorporate two rows of 60mA differently colored neon each, slowly cross-fading to create a third color.

While the neons create a colored sky above the shoppers, downlights bring a bright, warm glow so shoppers as well as the merchandise on display look good. Four hundred existing 175W mercury-vapor fixtures were retrofitted to utilize 150W metal halide, 3000K lamps. Eighty 150W PAR64 metal-halide, 3000K fixtures provide accents for plants and art. In the two court areas, 250W metal-halide pattern projectors with dichroic filters scatter magenta leaf patterns randomly throughout the space. The public space in the mall has a load of 101,250 watts, or 0.5W/per square foot. Although around 30,000 watts were added in neon accents and projectors, by replacing the 175W mercury vapor with 150W metal halide, Roeder saved 14,000 watts, keeping the mall energy-efficient, and cost-effective to operate. It is easy to appreciate how much efficient lighting can accomplish in the right hands: the sharp angles and indentations of the color-enhanced ceiling reflect the mountains surrounding Albuquerque.

Nayana Currimbhoy

Credits
Coronado Shopping Mall
Albuquerque, New Mexico
Owner: *Heitman Retail Properties*
Architect: *Brett K[illegible] Charles Aenlle/FRCH Architects*
Lighting Designer: *Craig A. Roeder Associates, Inc.*
Electrical Engineer: *Ron S[illegible]/Corporate Resource Engineering Ltd.*



© Robert Ames Cook photos

Accentuated by colored neon concealed specially constructed coves, the original ceiling of the Coronado wall (opposite) becomes a series of drywall sculptures. PAR64 metal-halide, 3000K lamps prov accents for plants and art. 250W-metal-halide pattern projectors with dichroic randomly scatter magenta-colored leaf terns (above) throughout the two court

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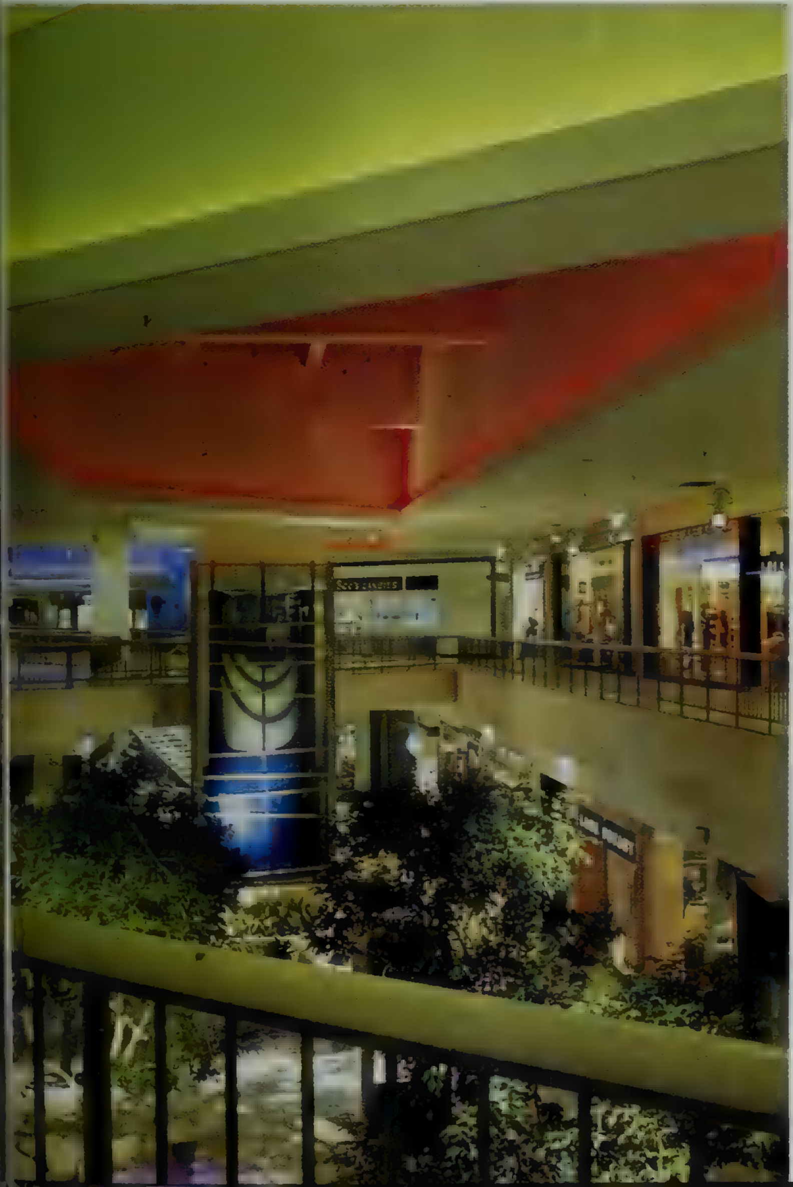
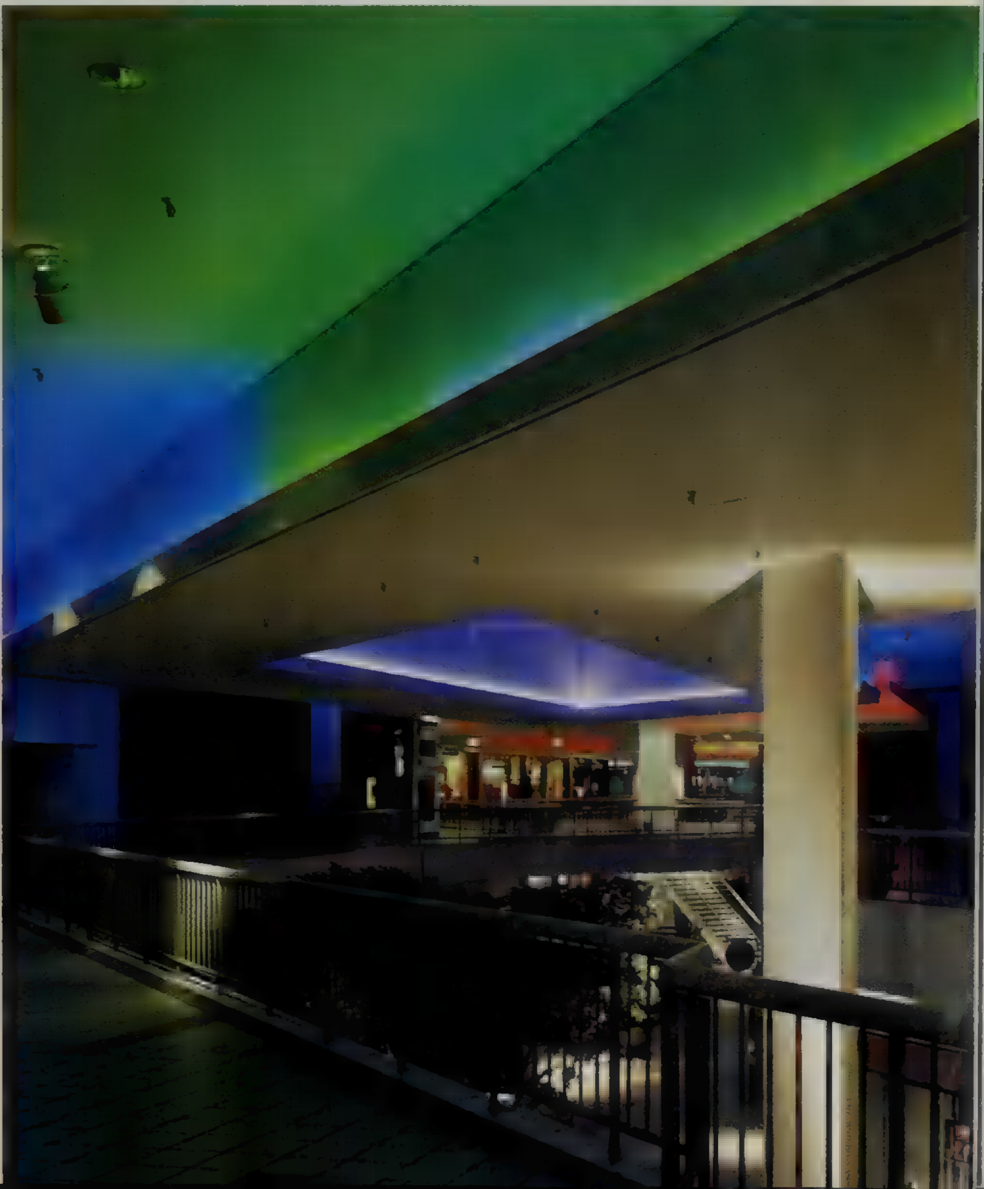
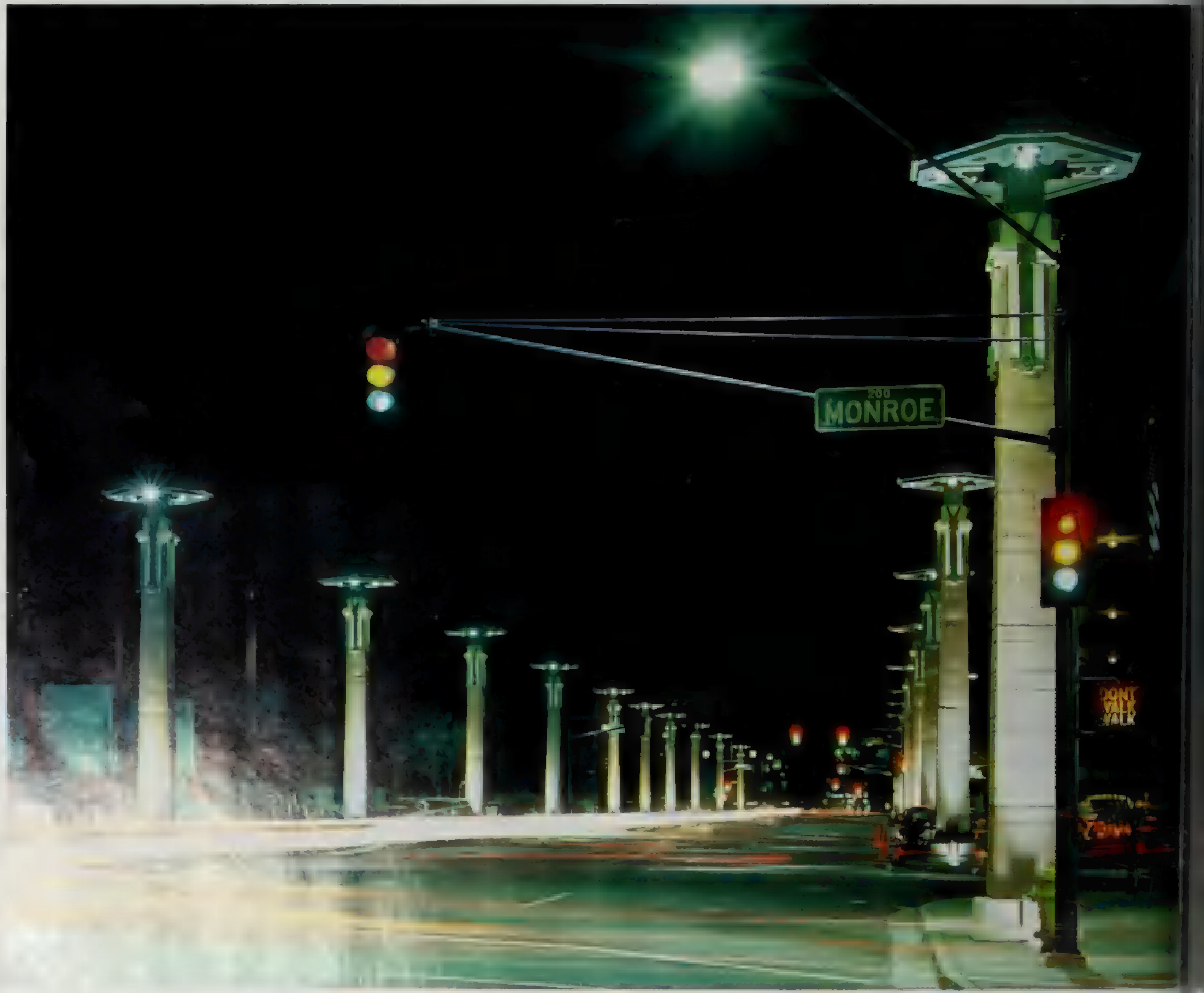

See's CANDIES



Phoenix Towers Rise

At a series of workshops in 1993, members of the Downtown Phoenix Partnership, a consortium of public and private downtown agencies and businesses, looked to carry out a program of improvements to enliven their downtown area and make it friendlier to pedestrians. a result of the workshops, the urban-design firm of Freedman, Tun and Bottomly focused improvements on a core area. Second Avenue major north-south thoroughfare which borders Phoenix's Civic Pla and terminates at the America West Arena, became a "ceremonial way" through the use of the over-scaled light columns (photos belo Two intersecting east-west streets, Adams and Monroe, were conve ed from one-way to two-way streets, with a lane of each given over angled parking, thus slowing traffic and creating more pedestrian- ented thoroughfares. Palm trees and metal-halide-lamped replicas period light fixtures were added to curbed islands centered at inter vals within the parking lanes.

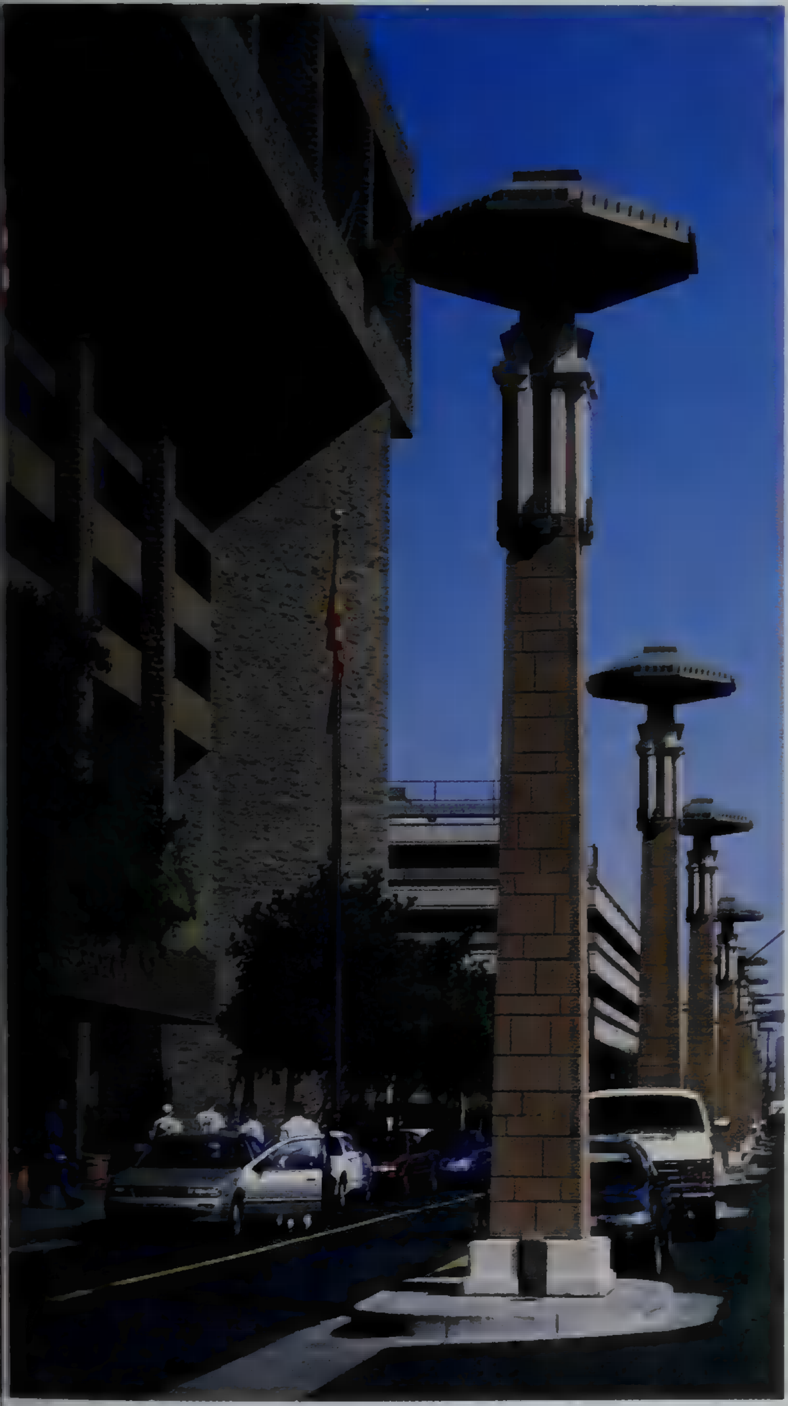
The light towers pay homage to Arizona's Pueblo-style architectur and Frank Lloyd Wright's influence on the regional architecture there. The challenge for the lighting designers was to provide exce lent roadway illumination and lighting for pedestrians while meeti

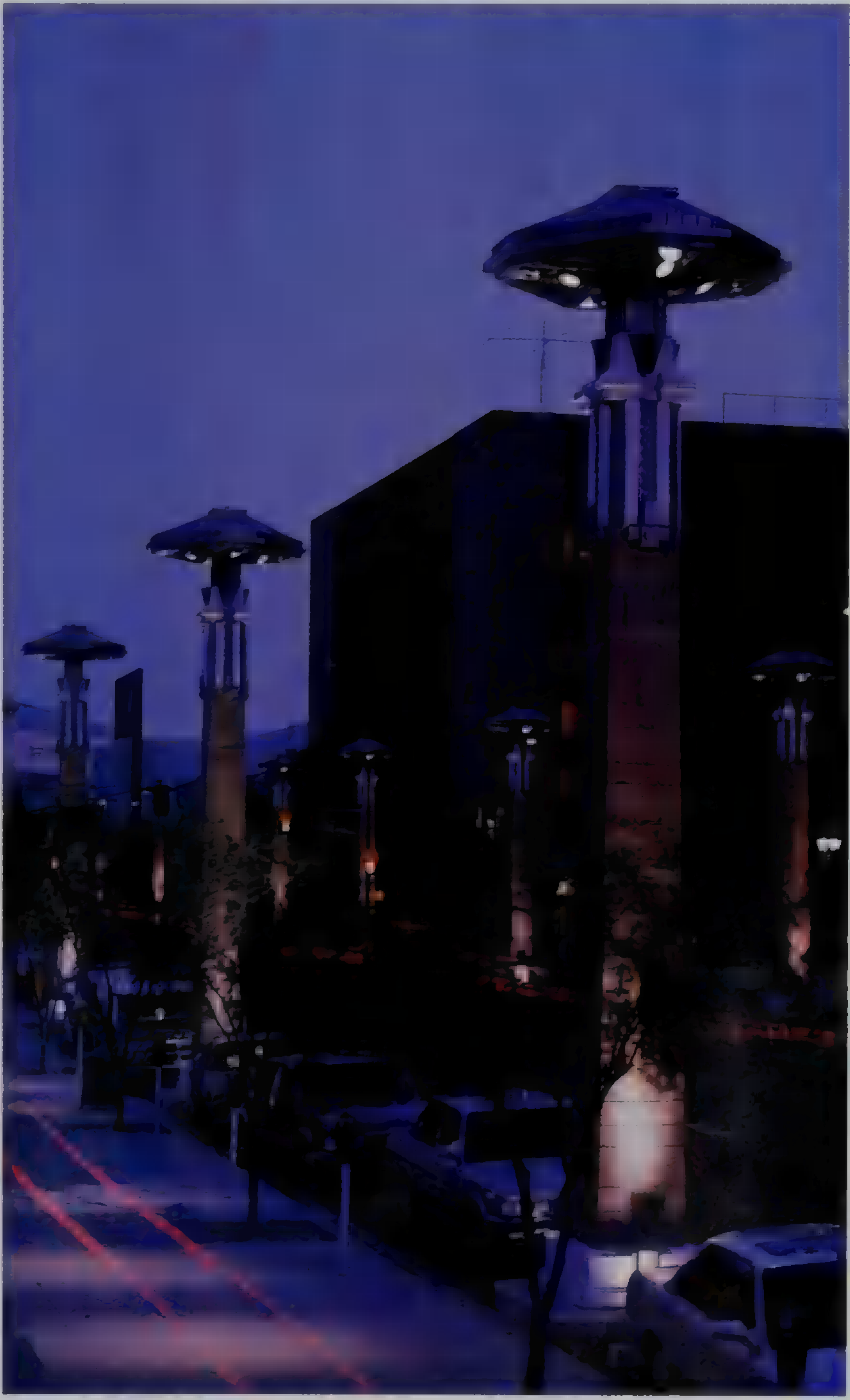


gy codes and the Phoenix Dark Sky Ordinance—it allows no light ding 1 candlepower above horizontal after 11:00 p.m. Lighting ner Jim Benya used 70W PAR38 metal-halide floods in eight table-ball luminaires in the head of each tower, each lamp pro- g a 30-degree pattern. The lamps produce an initial average of otcandles on the pavement and 5 footcandles on the sidewalks, ceeding the design requirement of 3 footcandles. The sharp f angle of the PAR lamps is critical in meeting the Dark Sky nance, Benya says. Each tower is uplit between dusk and 11:00 by four in-ground 100W metal-halide uplights, with 10-degree s, tilted toward the tower column at 3 degrees. *Charles Linn*

its
d Street Relighting
nix, Arizona
n Planners: *Freedman Tung & Bottomly*
ting Designers: *Luminae Souter Lighting Design—James a; Leif Johnson*
rical Engineer: *Cella Barr Associates—Len Wenzler*
truction Administration: *Benya Lighting Design*

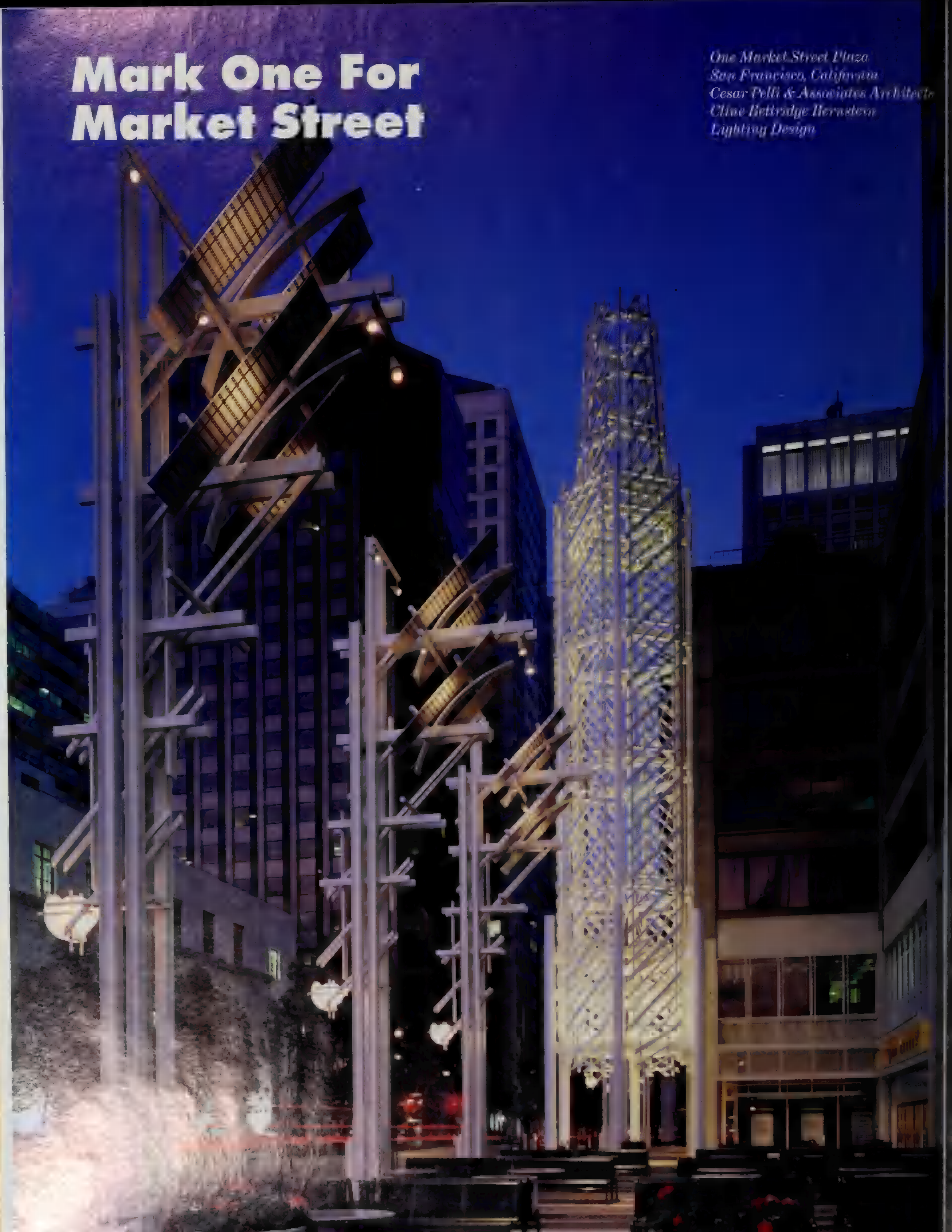
Second Street Relighting
Phoenix, Arizona
Freedman Tung & Bottomly Urban Planners
Luminae Souter Lighting Design





Mark One For Market Street

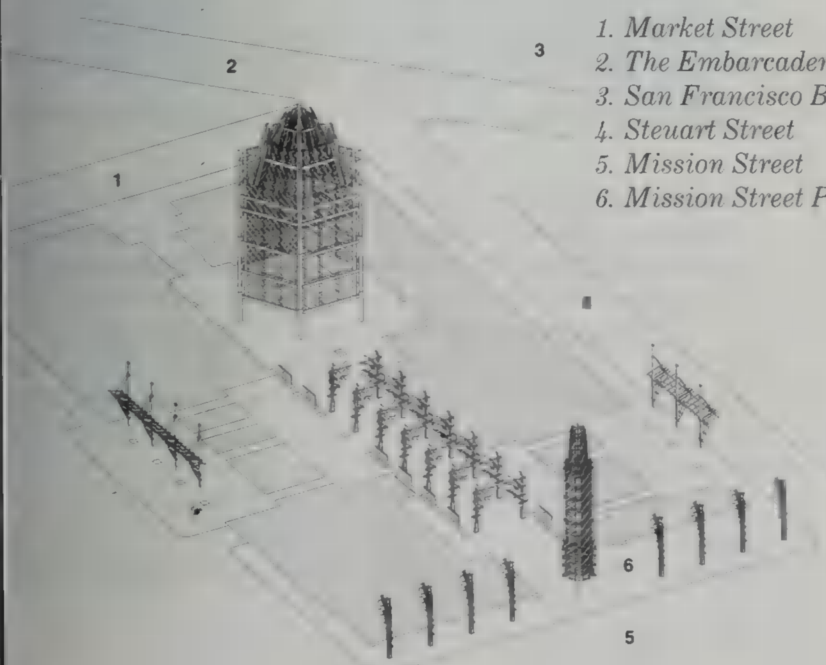
One Market Street Plaza
San Francisco, California
Cesar Pelli & Associates Architects
Cline Bettridge Bernstein
Lighting Design



he Loma Prieta Earthquake-damaged Embarcadero Freeway
lemolished, a dowdy, dark, 1970s office complex was prime for a
velopment—and it ultimately produced a unique lighting oppor-
y. Its four buildings, which had been sited in the shadow of San
cisco's most hated superhighway, suddenly had views, and easy
strian access to San Francisco Bay's promenade. The concurrent
velopment of the complex, One Market Street Plaza, and San
cisco's waterfront was a win-win situation. Cesar Pelli and Asso-
s set out to create a sense of place in this heretofore anonymous
lex, using sculpture and light to establish human scale where
had been none: in the public spaces between the buildings, a
-long plaza on Mission Street, the entry canopies and lobbies, a
urse between two of the buildings, and an atrium-courtyard.

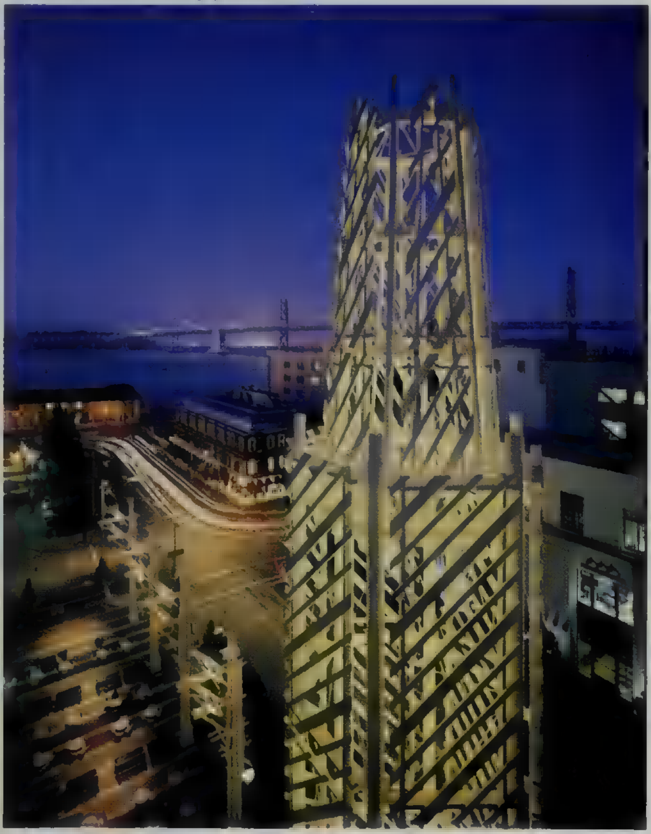
o of these locations, in front of the Mission Street entrance and
interior courtyard, lattice-like steel structures were erected.
Gate Tower (opposite and right top), on Market Street, is seven-
es high, and marks the plaza both from the Bay and looking
down Market Street from blocks away. The Courtyard Pavilion
wing two pages) is over nine stories high, and fills an atrium that
e had been no more than an architectural void. Carroll Cline and
cesca Bettridge of Cline Bettridge Bernstein Lighting Design
ed and flooded the interiors of these structures using a combina-
of deluxe high-pressure sodium (hps) and quartz lamps, with an
tment of beam spreads (see following page for lamping diagrams
urtyard Pavilion). Defining the edge of the site are steel lamp-
with glowing acrylic flags (opposite). A series of aluminum-
crylic stanchions (below right) create a scale-giving canopy in a
ously undistinguished concourse, while dropping pools of light
the floor.

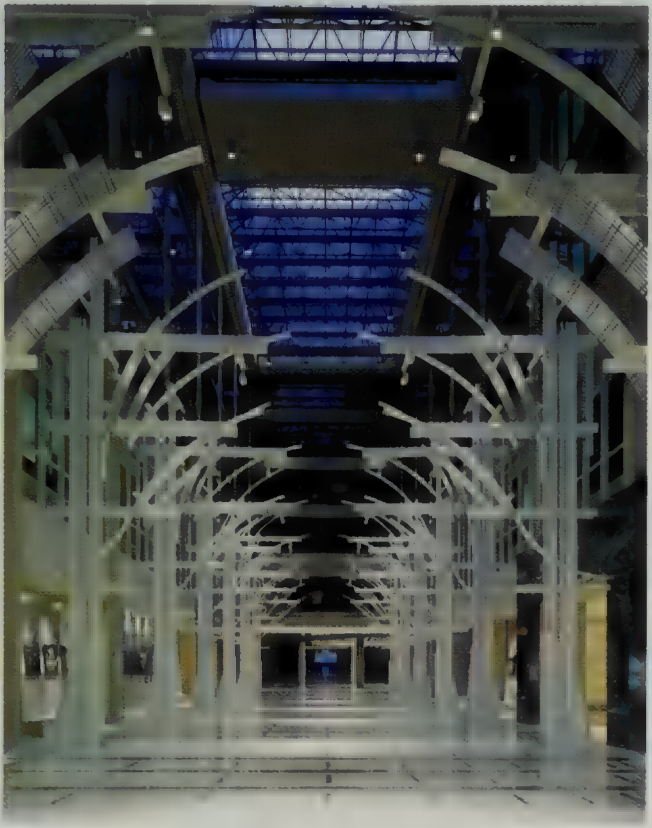
e two towers, Bettridge and Cline worked with Turan Duda, the
n team leader from Pelli's office, to be sure that all fixtures were
aled but accessible for relamping, designing catwalks where
ssary, and custom-mounting hardware that would swing fixtures
n reach for relamping. "Every mounting condition was differ-
says Bettridge. Another challenge was meeting California's
24 energy requirements. A good deal of deluxe hps was used to
the structures; the term "deluxe" denotes that these lamps have
monochromatic color-balance than regular hps. But getting
hing colors of different wattages of deluxe hps lamps is difficult.
n though a manufacturer says all their lamps will match," she
nues, "they don't. We sometimes mix the products of different
makers to find lamps with colors that are alike." *Charles Linn*



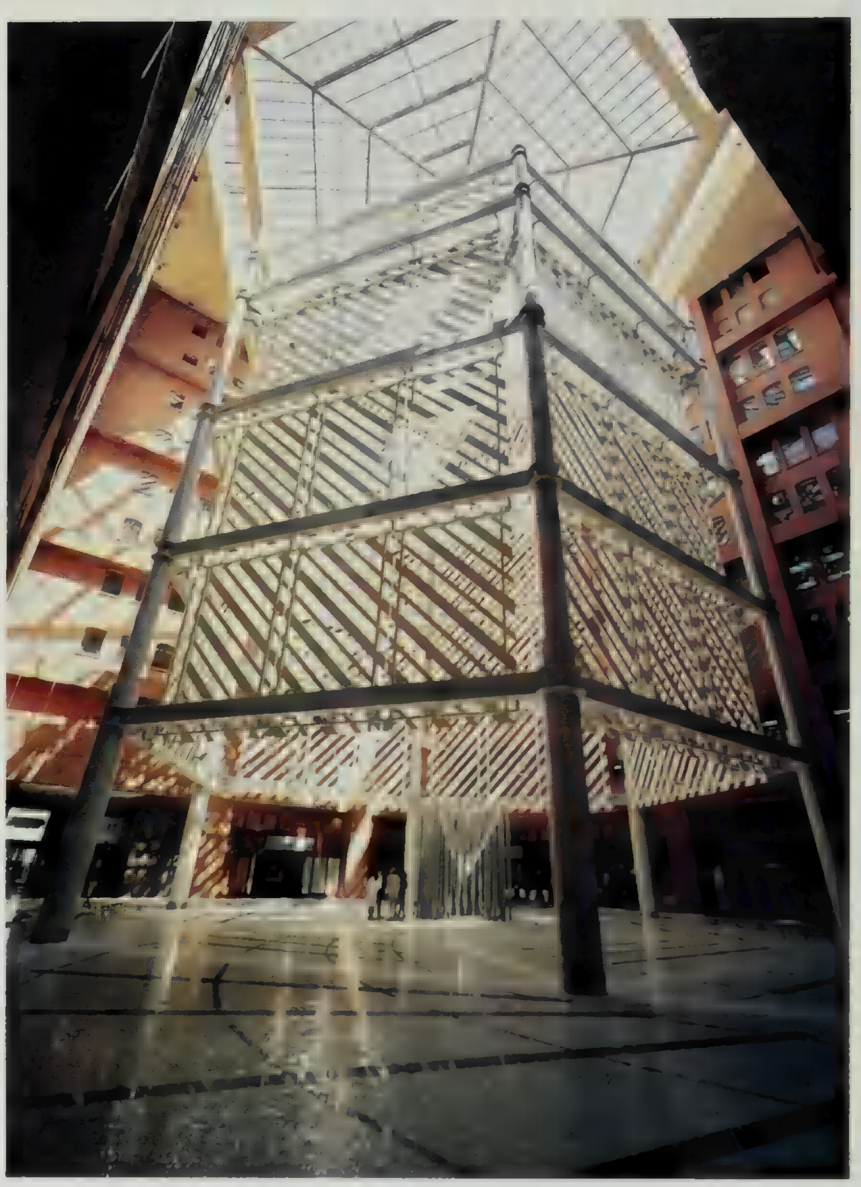
1. *Market Street*
2. *The Embarcadero*
3. *San Francisco Bay*
4. *Steuart Street*
5. *Mission Street*
6. *Mission Street Plaza*

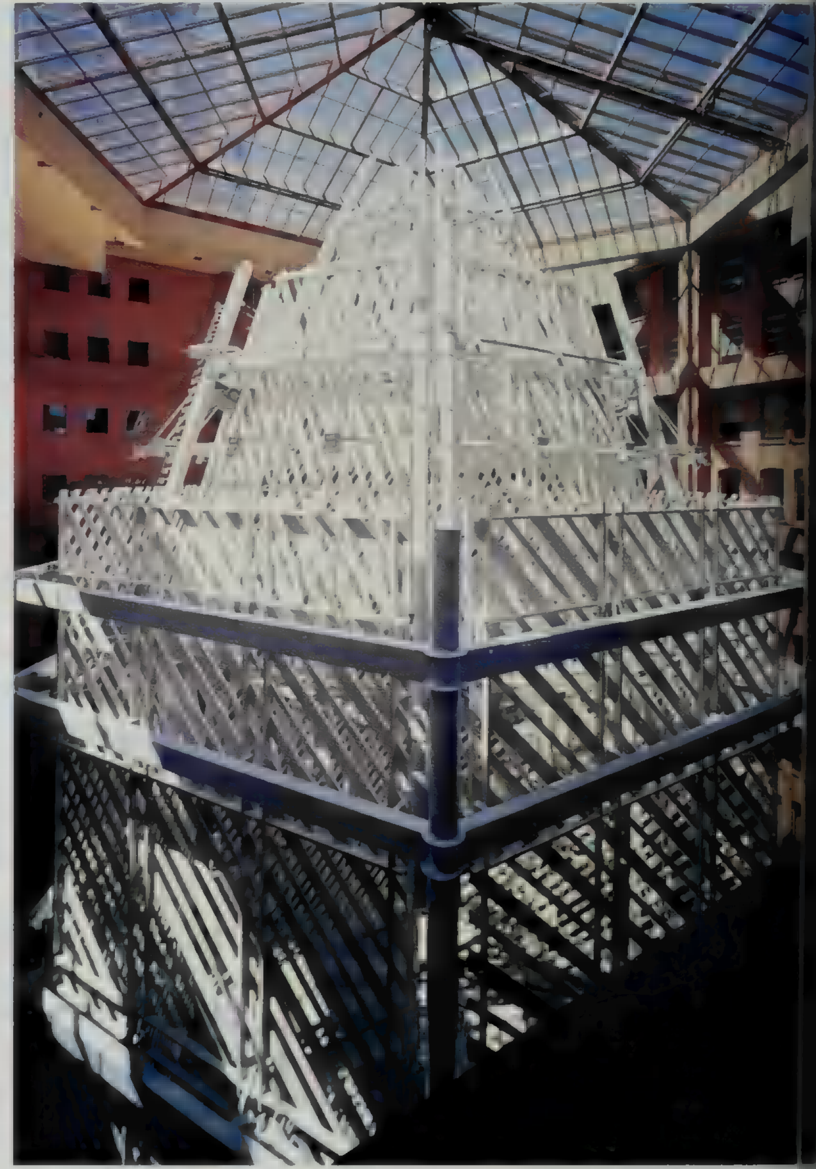
© Timothy Hursley photos



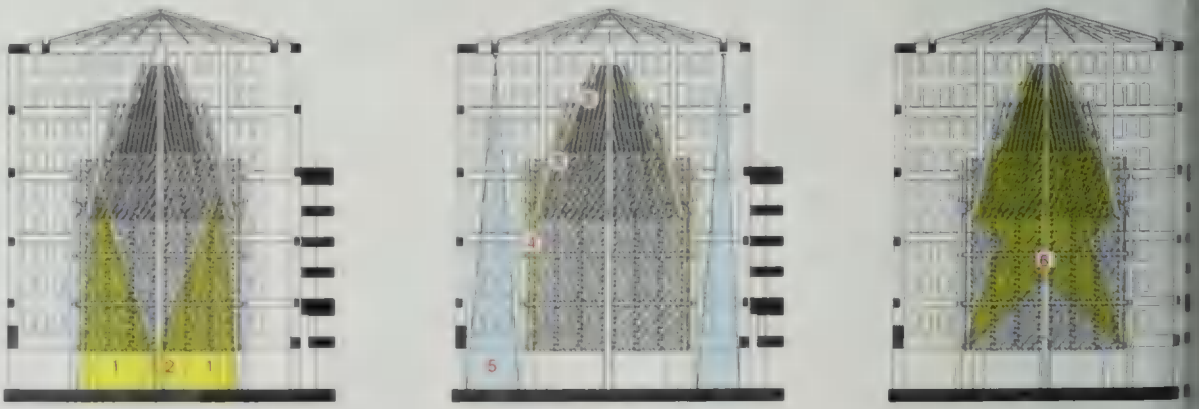


The lighting designers have used quartz and deluxe hps to illuminate the interior of the Gate Tower (opposite and top above), which has become a new nighttime landmark on the waterfront. Steel lamp posts define Spear and Mission Streets, and illuminate the sidewalks. An anonymous concourse (above) comes alive with glowing aluminum and acrylic stanchions.



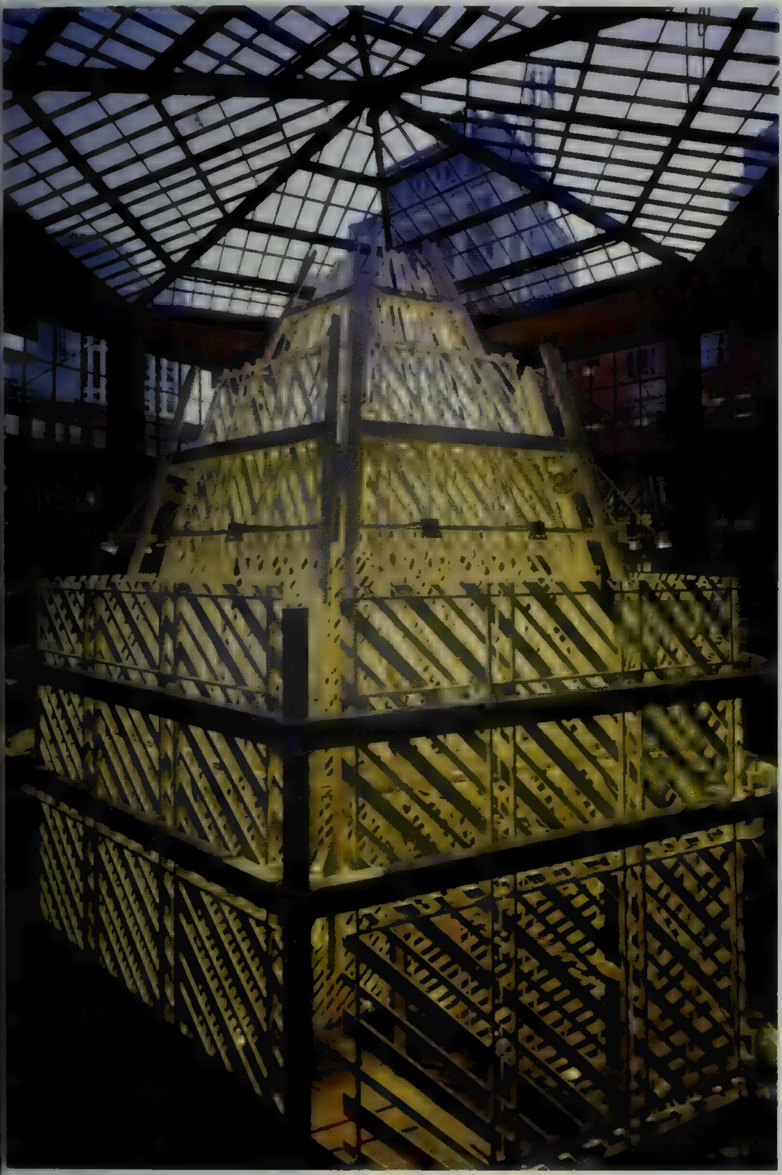


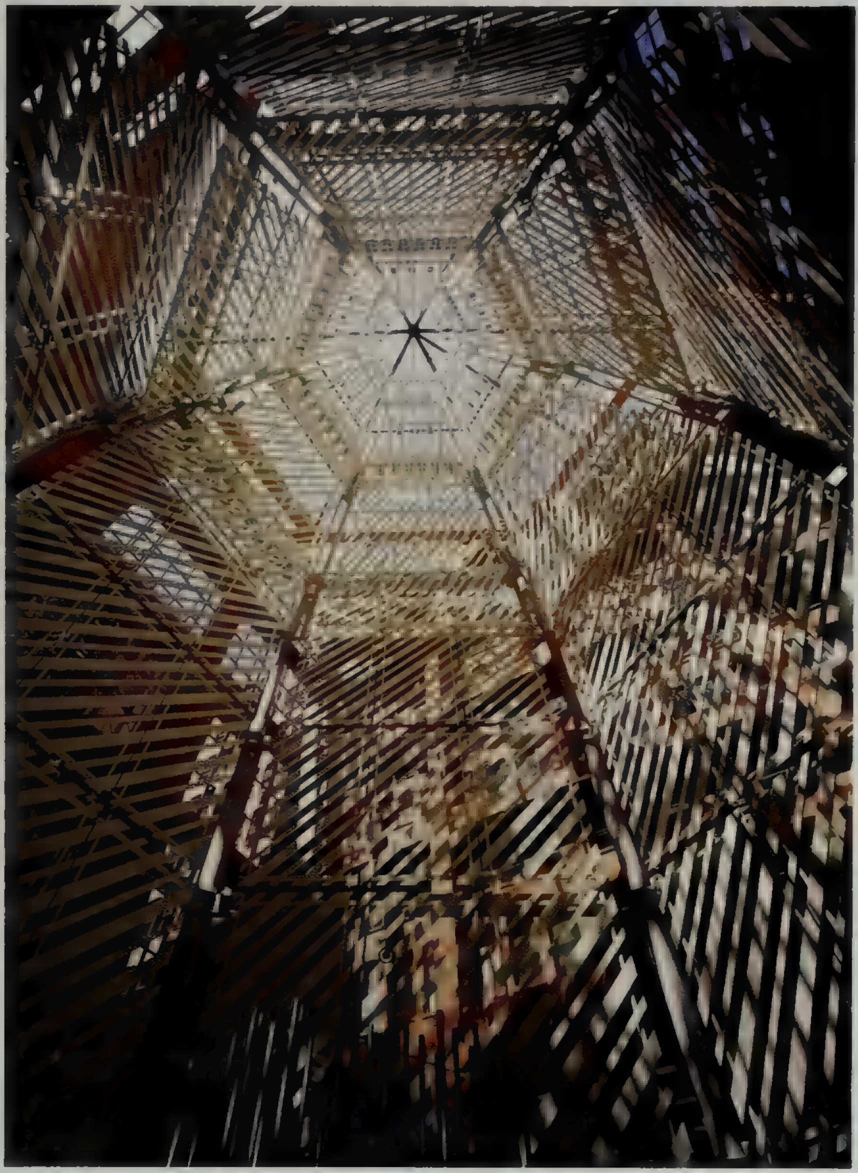
1. 500W PAR56 medium flood accents on floor
2. 240W PAR56 very-narrow-spot accents on fountain
3. 150W and 250W deluxe hps grazing lights
4. 150W and 250W deluxe hps grazing lights
5. 250W deluxe hps perimeter downlights with blue filters
6. 150W deluxe hps uplights

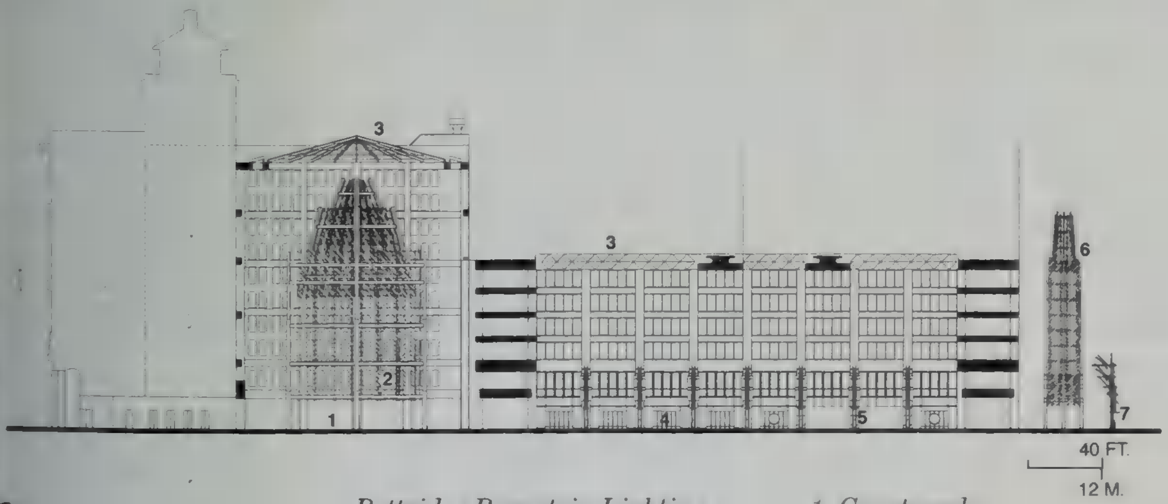


A large, forbidding void between the office buildings had a new skylight installed over it, and the the Courtyard Pavilion built in the space. The pavilion is illuminated by the skylight during the day, and its lattice-work produces lively shadows on the floor and walls of the space (above right and left; and opposite right). The beam patterns and lamp types chosen by the light-

ing designers to illuminate
Courtyard Pavilion are illu
ed in the diagrams above. M
of the lighting simply graze
structure, with a minimal
amount of light directed up
across the structure making
steel components seemingly
from the inside. The lightin
controlled by a dimming sy
and the space is equipped w
sound system for special ev







ts
arket Street Plaza
rancisco, California
r: *The Yarmouth Group*
tects: *Cesar Pelli &*
iates—Cesar Pelli, design
pal; Fred Clarke, project
pal; Turan Duda, design
eader
iate Architects: *Patri-*
ge-Merker
ng Designer: *Cline*
Bettridge Bernstein Lighting
Design—Francesca Bettridge
and Carroll Cline, partners-in-charge
Consultants: *Martin*
Middlebrook & Louie
(structural); Glumac and
Associates (electrical)
General Contractor: *Swinerton*
and Wallberg Company

1. *Courtyard*
2. *Courtyard pavilion*
3. *New skylights*
4. *Concourse*
5. *Concourse stanchions*
6. *Gate tower*
7. *Lamp posts*

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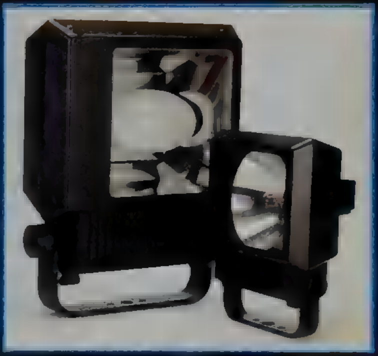

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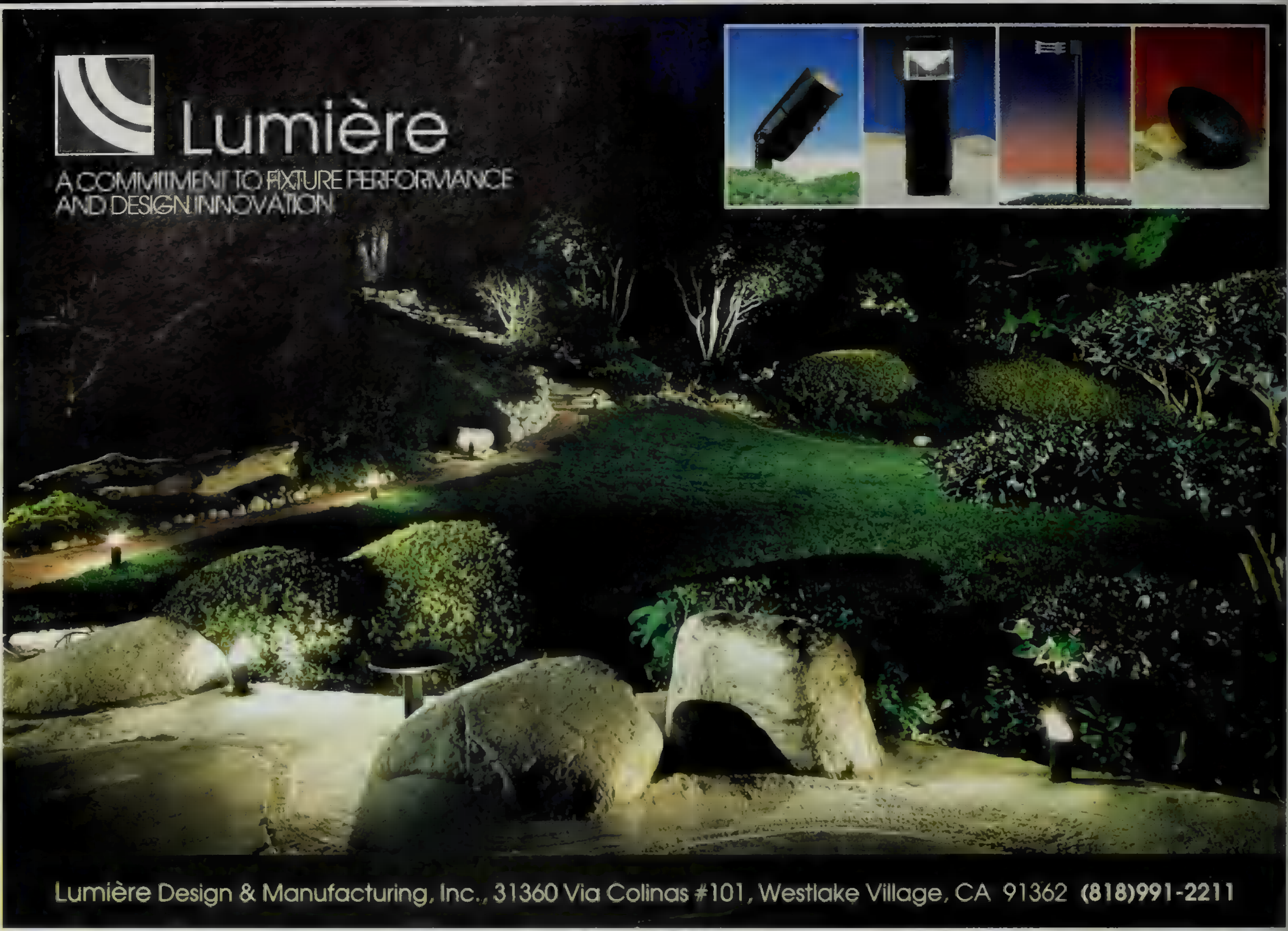

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Manufacturers' Sources

For your convenience in locating lighting fixtures and other products shown in this month's feature articles, RECORD *has asked the architects and lighting designers to identify their sources.*

Pages 24-25

Eastridge Mall, San Jose, Calif.
ELS/Elbasani & Logan Architects, Architect
Horton•Lees Lighting Design, Inc., Lighting Designer
Torchière: custom by ELS, fabricated by Shaper. Pendant: custom by Horton•Lees Lighting Design, fabricated by Shaper. Exterior lantern: custom by ELS, fabricated by Dick Sylvia & Sons. Signage and graphics: Scott Architectural Graphics.

Pages 26-27

Coronado Shopping Mall, Albuquerque, N.M.
Brett Kratzer/Charles Aenlle/FRCH Architects, Architect
Craig A. Roeder Associates, Inc., Lighting Designer
Neon- and cold-cathode fixtures: Neotex. Other interior lighting: Lite Lab; Edison Price Lighting. Pattern projector fixtures Arc Casino Lights. Exterior lighting: Lumière; Hydrel; Sterner Lighting Syste Inc. Sources: General Electric Lighting.

Pages 28-29

Second Street Relighting, Phoenix, Arizo
Freedman, Bottomly & Tung, Urban Plan
Luminae Souter Lighting Design
Downlighting: Hadco. Uplights: Hydrel Corp. Pole-top luminaires: Sentry. Metal-halide lamps: General Electric Lighting.

Pages 30-33

One Market Street Plaza, San Francisco
Cesar Pelli & Associates, Inc., Architects
Cline Bettridge Bernstein, Lighting Desi
Incandescent downlights: Edison Price. (lighting: Mark Lighting; Legion Lighting PAR56 low- and line-voltage fixtures, HP grazing and down-lights (interior and exterior): Sterner Lighting Systems, Inc Incandescent, fluorescent and HPS sour General Electric Lighting; Philips. Cust accent lights: Nulux. ■

IALD Poll *continued from page 14*

ing designers more than any other group over 94 percent of the lighting firms wor with architects, while only 67 percent of l ing specifiers are engaged by interior-de firms. More lighting-design firms are co tracting directly with owners—a trend th appears to be strengthening. This was th case with 78 percent of the specifiers in And, it appears that developer work is growing again from 43 percent in 1994 to projected 55 percent for 1996. Work with government is steadily rising again.

The importance of lighting design as a v service is borne out by the healthy optim projected by members of the IALD in th 1996 poll, and the world-wide activity of members across a variety of project typ reflection of the current construction m The involvement of lighting designers in design process adds to the overall inten effect of the architectural space and can tively affect its inhabitants.

For more information on the IALD or t poll, contact Maria Becerra, Internatio Association of Lighting Designers, 113 Broadway, Suite 520, New York, N.Y. 10 212/206-1281. ■

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aw aluminum and sleek steel
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ving and working environments.
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The Original Cast Lighting Inc.
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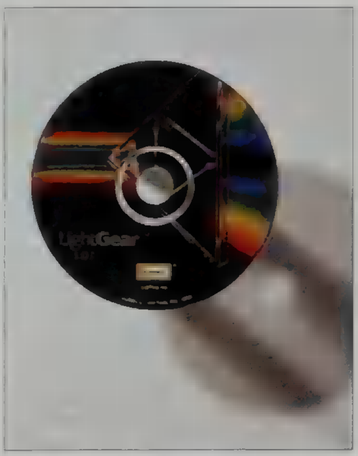

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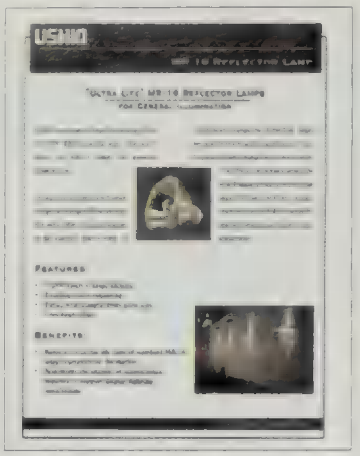

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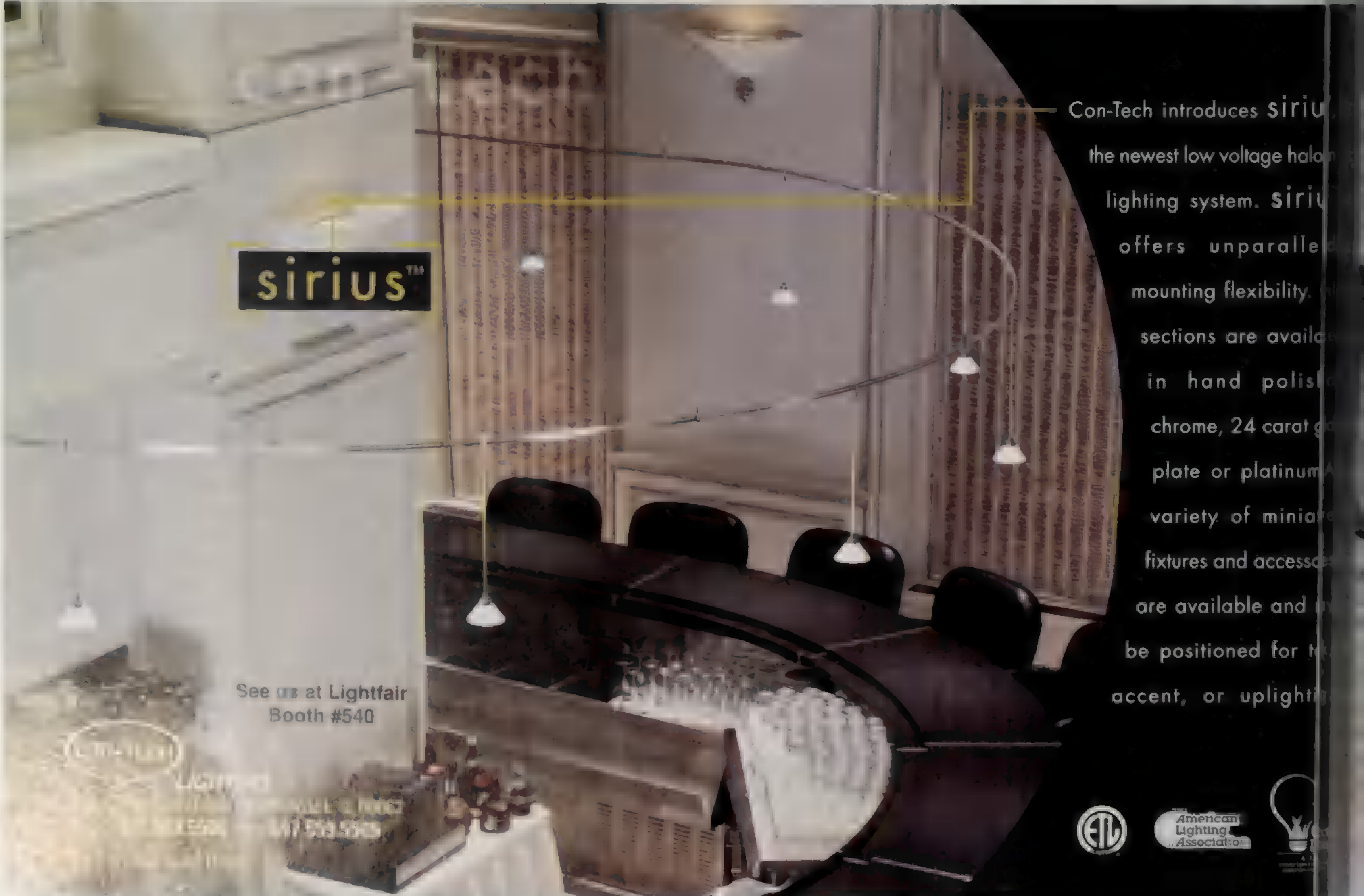

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page catalog covers small-scale
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ght specimen plantings,
ns, and pathways. Includes
and finish color options, mount-
structions, dimensions, and
spreads. 818/991-2211.
ère, Westlake Village, Calif.

363. Architectural downlighting
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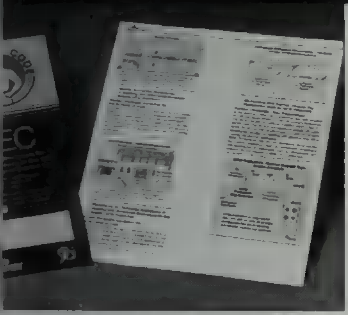

Electrical-code update
pamphlet describes the most
tant revisions to the 1996
nal Electrical Code affecting
ntial, commercial, healthcare,
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red with the help of code expert
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change, showing where devices
d go. 800/323-8920. Leviton Mfg.
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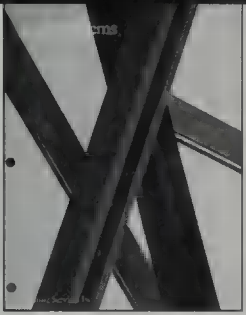
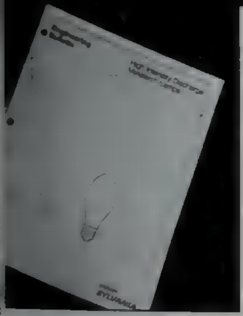


365. Guide to track systems
Recessed, surface-mounted, and suspended track-lighting assemblies are detailed in a 40-page catalog. Clearly presented product data includes component diagrams, installation and fixture-layout instructions, lamping options, key features, and suggested applications. 800/999-9574. Lighting Services, Inc., Stony Point, N.Y.



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n Sylvania, Inc., Danvers, Mass.

367. Residential/commercial
Progress offers a wide range of lighting designs for home and office, from ornate chandeliers and Victorian pendants to sleek halogen uplights. A 256-page catalog covers 11 product lines, including bath, hallway, outdoor post and path luminaires, track systems, and kitchen lighting fixtures. 864/599-6123. Progress Lighting, Spartanburg, S.C. ■

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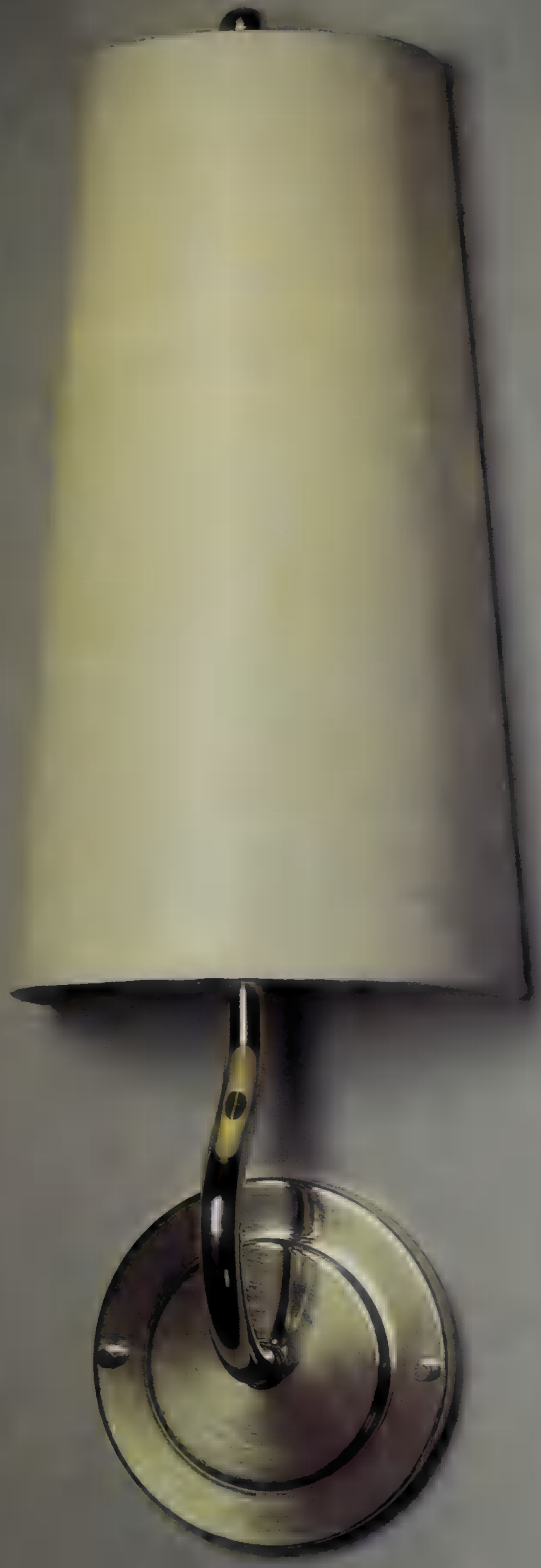

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(E) Engineering & Retrofit
(I) Industrial Construction & Renovation
(H) Homebuilding & Remodeling
(C) Contract Interiors
(L) Light Source

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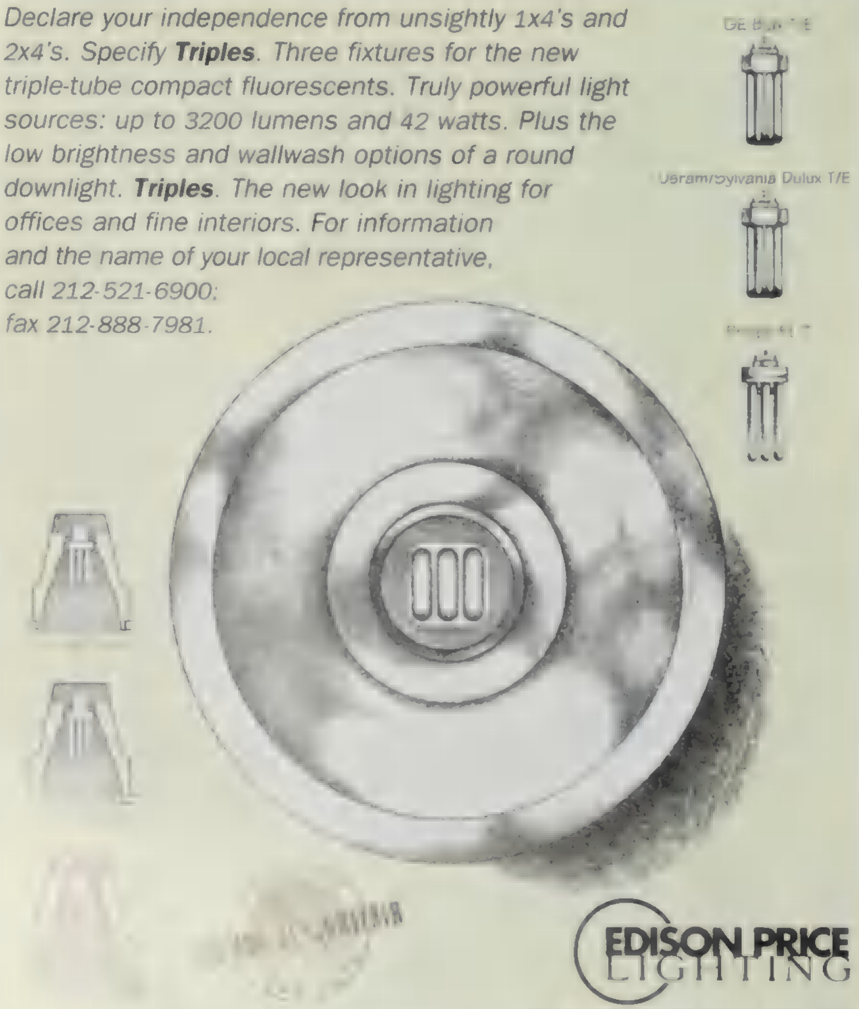

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Plans for upcoming issues of ARCHITECTURAL RECORD LIGHTING include:

The relighting of **St. Mary's Cathedral**, in Portland, Oregon, by Robert Dupuy of Interface Engineering.

Contrasting the old with the new in Japan: **two lighting projects by Motoko Ishii**, Japan's foremost lighting designer.

The **Public Museum of Grand Rapids**, by architect Verner Johnson and lighting design by William Lam and Partners.

Randy Burkett Lighting Design's work on the **American Queen**, a new steamboat cruising on the Mississippi.

The Edge Cafe at Colgate University, by Einhorn Yaffee Prescott Architects.

A review of two daylit buildings in the United Kingdom by architectural educator Adam Jackaway.

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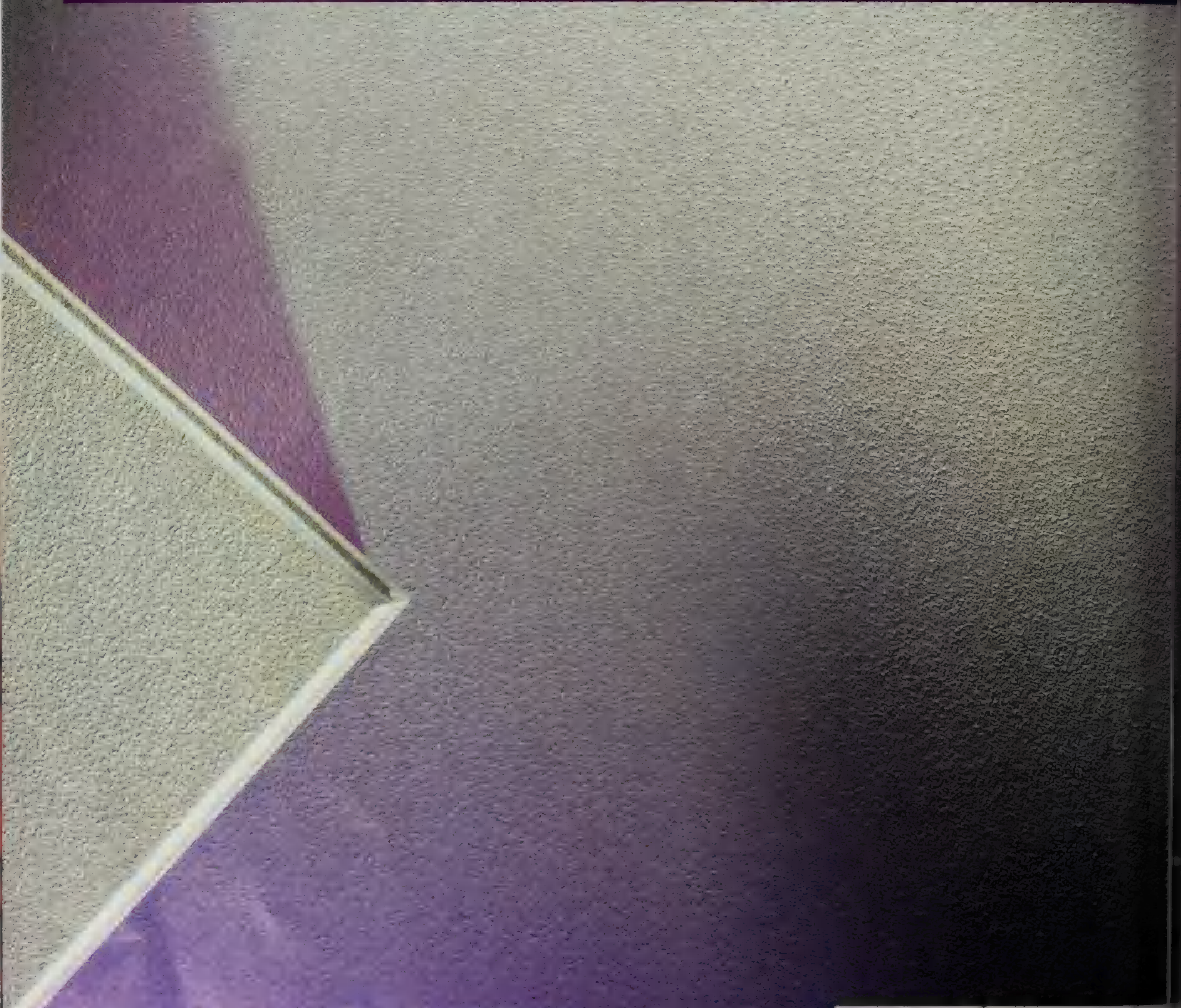

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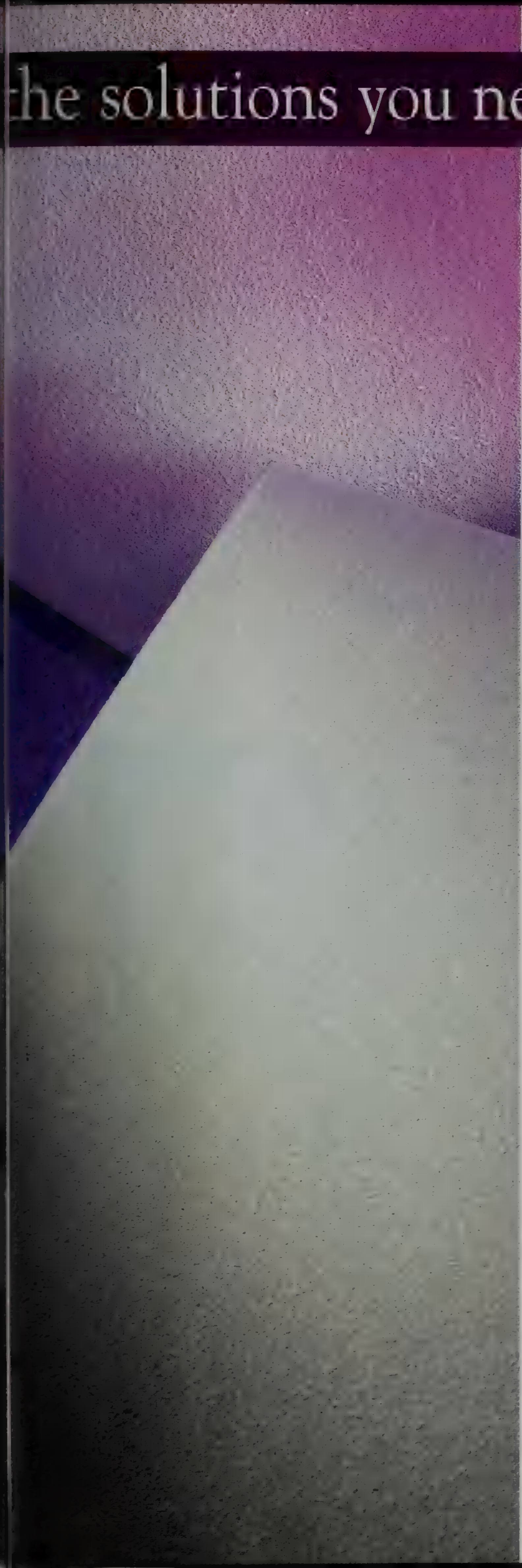

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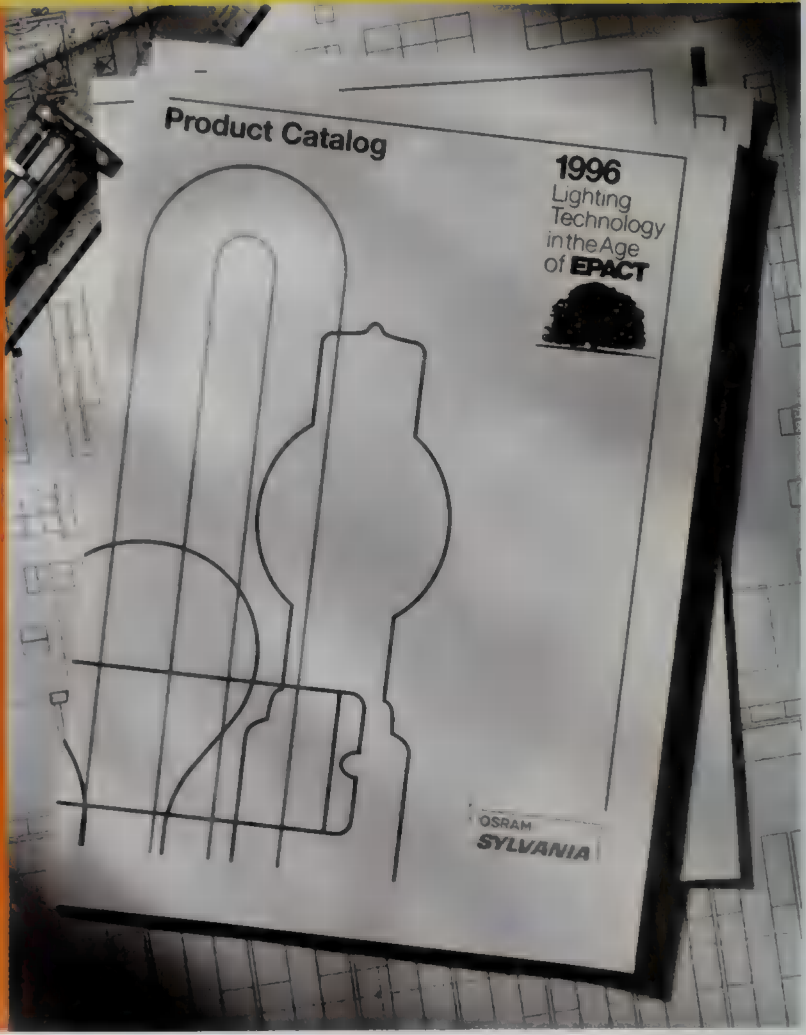

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h center brings an end to
turf wars (page 88).

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RD Continuing Education learning
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les that deal with community
ings, their creation, financing, and
ct. See page 65 for learning credit
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This logo indicates that the story is eligible for AIA/ARCHITECTURAL RECORD continuing education credits. Turn to page 65 for instructions.

Continuing education credits

Please accept my appreciation and thanks for your new feature giving architects the opportunity to earn continuing education points, and especially for your reasons for doing this, as expressed in your editorial [ARCHITECTURAL RECORD, April 1996, page 9]. This so-called continuing education business has imposed an unwonted and unnecessary burden upon all architects, but mostly upon those who do not practice but must be registered in order to legally call themselves architects.

Anything that can be done to ease this problem is most welcome. While it might be said that the idea behind this program is well-intentioned (remember the paving material of the road to Hell!), it has been applied with all the finesse of a berserk bulldozer. If one of the purposes of the program is to bring respect to architects in the eyes of the public, it shows very little respect for those same architects. They are told, by suggestion, that they who have been working and/or practicing for years are now too dumb, ignorant, and uninformed to continue as architects unless they earn some arbitrary number of "points." To enforce the program, it holds in ransom the very license(s) under which we have been successfully practicing! Your attempt to ease this burden is most welcome.

George S. Stuart
Consulting Architect
Atlanta, Georgia

AIA/RECORD affiliation

I was greatly disheartened when I learned that ARCHITECTURAL RECORD had entered into an agreement with the AIA as their [illegible] publication. I have been a [illegible] and subscriber [illegible] I looked at your publication as an impartial observer of the architectural scene. Prior to this announcement, the unique editorial role of the RECORD as an independent—and impartial—observer and reporter of the profession of architecture was appreciated and respected as evidence of true journalism. Most AIA publications I have read do not give any recognition to alternate design organizations, or to opinions and projects of unaffiliated architects, and I am afraid that this bias will replace the journalistic freedom that the RECORD now enjoys.

Roger A. Weaver
Architect
Harmony, Pennsylvania

You need have no fear that the alliance between the American Institute of Architects and The McGraw-Hill Companies' Construction Information Group, to which ARCHITECTURAL RECORD belongs, will jeapordize RECORD's role as an independent and impartial publication. We have always, and will continue to, select projects for the magazine based strictly on the significance of the building, not on the professional affiliation of the architect. Many of our subscribers, indeed, belong to no professional society, and their activities too will continue to be welcome in our pages.—Editor

Welcome back

Twenty years ago I stopped reading the architectural publications, with the exception of CSI's *Specifier* and *Architecture*, the latter only because it was included with my AIA membership. Recently I was reintroduced to ARCHITECTURAL RECORD, and was extremely pleased with your magazine—both in terms of content and format. I felt that you had finally found the way to serve the architectural community.

Then I learned that RECORD was soon to become the official magazine of the AIA. "Wonderful," I thought; "good move!" Then you top that by offering in your RECORD HOUSES issue AIA/CES Learning Units, and commit to even greater advances.

Congratulations. Architects at last have a professional publication they can be proud of, and that meets professional needs. Keep up the good work.

Ronald P. Gothberg
Architect
Sacramento, California

Record Houses 1996

I found the selection of the Lott House and Guest House by Karen Stein [RECORD, April 1996] to be an inspiration and educational. First I was inspired by the fact that a truly mediocre design could be a winner. Next year I will send my latest suburban embarrassment. Second, I now know I shall no longer have to sit in my back yard, but instead can "repose" on my "miniature grassy mall."

Jon Bloss Blehar
Architect
West Palm Beach, Florida

Congratulations. The Record Houses are the best-designed houses shown in RECORD HOUSES in the last 25 years (Jimenez in Houston and Gluckman, Nova Scotia excepted in the above opinion). Architects are now designing and creating livable spaces once again, the kitchen/bath article included. Hooray—Postmodernism is dead!

William Krisel
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Los Angeles, California

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ARCHITECTURAL RECORD Editorial

Carnegie Report: Quiet Thunder on The Education Front

Some expected the long-awaited report on architectural education prepared by the Carnegie Foundation for the Advancement of Teaching, sometimes known as the Boyer report, after the late Ernest L. Boyer, the Foundation's president who died five months before it was made public, to be a highly prescriptive document. It would set the nation's 103 accredited schools of architecture swinging on a high course of greater relevance, increased respect within the academic community, and a closer reflection of the nation's diversity.

Others expected a toothless scholarly research report identifying the various problems besetting the schools, but coming up with few solid directives as to what to do about them.

What emerged last month (see also a summary of the report in RECORD, May 1996, pages 22 and 128), is neither a dramatic call to action nor a bland statement of vague intentions. Rather, it recognizes the variety of configurations and curricula that mark the schools, and settles instead for a formula offering a series of guideposts for students, faculty, practitioners, and administrators. It seeks to move the present system out of its doldrums and toward a system of schools more relevant to the profession, to other departments on campus, and to the nation's agenda.

The chief phenomenon that captivated the researchers, who visited 15 campuses, 24 architectural firms, scrutinized 50 NAAB reports, and surveyed 500 students, faculty, administrators, and architects, was the design studio. "We were especially inspired by the design studio, the distinctive holy-of-holies of architecture education where generations of bleary-eyed students have hunched over drafting tables till all hours working on balsa or cardboard creations amid old sofas and soda cans. We are convinced that these studios, scruffy though they may look, are nonetheless models for creative learning that others on campus might well think about."

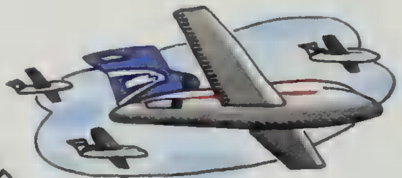
While this romantic vision of the studio is getting to be more the exception than the rule in an increasingly automated school learning environment, it does retain the essential kernel of an architect's education, namely design, which is, in the final count, the process of taking the chaos of often conflicting constraints of program, budget, site, and schedule, and melding them into a buildable, functioning, affordable whole.

The Carnegie report places an unerring finger upon the two critical disconnects plaguing today's architecture schools—the gaps between the schools and professional practice, and between the architecture schools and the rest of the campus community. Architecture students and faculty, says the report, "seem isolated, socially and intellectually, from the mainstream of campus life. And if the most pessimistic observers are correct, the gulf dividing architecture schools and the practice world has grown perilously wide." By urging upon its constituencies its 7-goal bundle (concern for social and environmental values; greater campus respect for the special teaching process of the architecture school; a shift from blocks of knowledge to modes of thought; support of alternate career options; a more liberal curriculum with focus on communicating; dramatically increased liaisons between office and school; and greater engagement between schools, architects, and the community), it expects each group to devise and run with its own viable program.

In the end, the Carnegie report's greatest contribution may well be its goal number 6: "A unified profession." It pinpoints a range of means to close the gap between the schools and practitioners, showing ways to band together around enriched learning in school, sensible internships, and sustained learning from career beginning to career end.

To make this happen, every architect, student, educator, and administrator needs to read this civil, optimistic, blessedly jargon-free report, then pick up the ball and convert its generalized tenets into specific plans of action.

The Carnegie report offers a rare opportunity to re-form the present system. The process should begin without delay. *Stephen A. Kliment*



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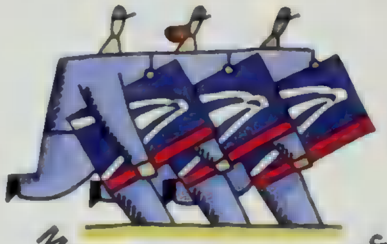

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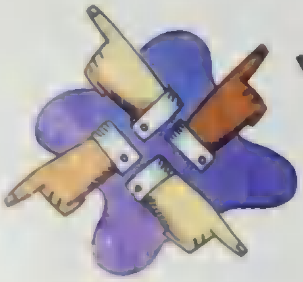

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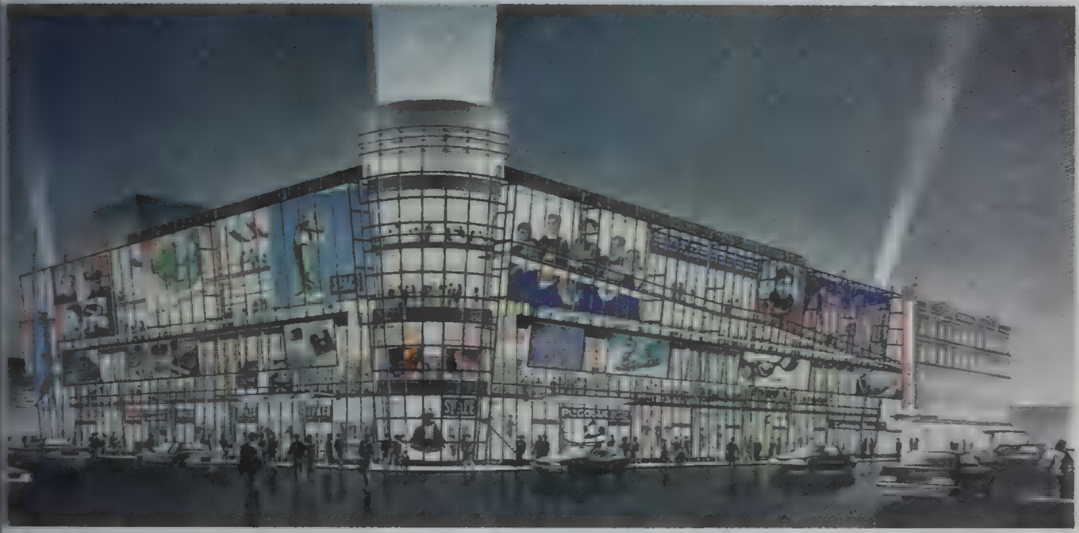
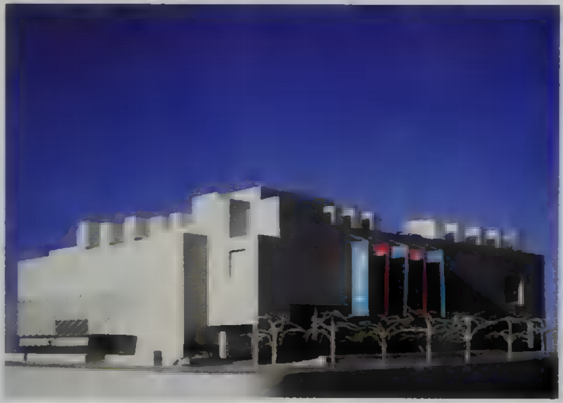


:he March announcement of plans for a illion, 260,000-sq-ft retail and enter- ent complex in Manhattan's Harlem, st in inner-city commercial projects is ng trend-setting proportions. Designed nmons Design Group of Brooklyn with ore, Owings & Merrill, New York, m USA is designed to address the with a transparent curtain wall and d-level access to most of the stores. The Street complex will also contain interactive exhibitions (linking corporate sponsors to local educational, recreational, and cultural organizations), a sports center, and a cinema. Developed by Grid Properties and the Gotham Organization in conjunction with the Commonwealth Local Development Corp., it will be funded with equity from the developers and conventional debt financing and is expected to create 500 permanent jobs. Groundbreaking is set for year's end. *Abby Bussel*

Houston

Moneo Unwraps Museum Design

The final design for the Audrey Jones Beck Building of the Museum of Fine Arts in Houston, by Spaniard Rafael Moneo with local firm Kendall/Heaton Associates, has been unveiled. The 185,000-sq-ft addition, slated for a full-block site across from the existing complex, will improve the museum's national ranking in exhibit space from 30th to 6th. Underground galleries will link the new building to the existing museum, which was designed by William Ward Watkin (1924) and added to by Mies van der Rohe (1958, 1974). The limestone-clad structure, with its crenelation of rectangular skylights, is to be completed in 1999. *Gerald Moorhead*



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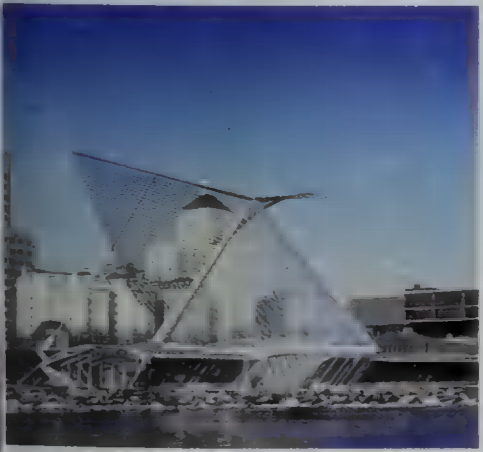
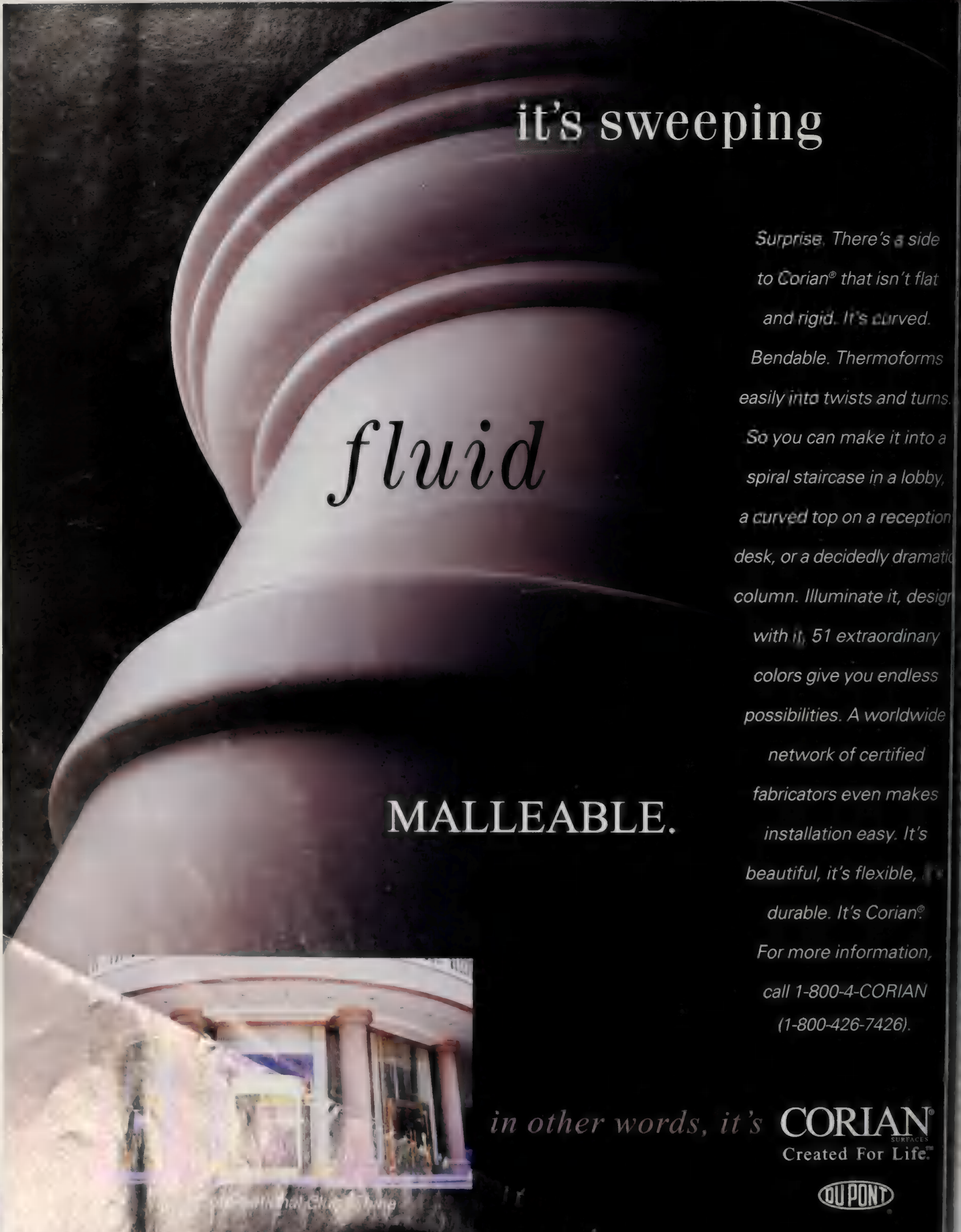
latrava's Expansion of Saarinen-Designed seum to Take Flight in 1999



Santiago Calatrava's design of a $27-million addition to the Eero Saarinen-designed Milwaukee Museum of Art has been adopted. Calatrava's second commission in the U.S. (after his commission to complete New York City's Cathedral of St. John the Divine, a project now on hold) and most likely his first built work here, is a 58,000-sq-ft addition that will house changing exhibition galleries, a 300-seat lecture hall, a restaurant, and a gift shop. Inspired by the site of the museum on Lake Michigan, Calatrava's design—a kinetic sculpture conjuring bird- and ship-like forms—will be entered through a 60-ft-tall, translucent pavilion with an adjustable louvered sunscreen. A single-story galleria of glass, steel, and concrete will connect with the existing museum, designed by Saarinen in 1957 and added to in 1975 by local architect David Kahler, who is also the architect of record for the new wing. A suspended pedestrian bridge, with a 100-ft angled mast, will play a key role in connecting the museum to Milwaukee's downtown. A fund-raising campaign is currently under way and a December 31, 1999, opening is planned. *A.B.*



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Right-Sized Future for Living in
wer Manhattan

As Wall Street tries to reinvent itself as a 24-hour community, a downtown plan—and its critique by Columbia University students—offers an intriguing, if imperfect, model.

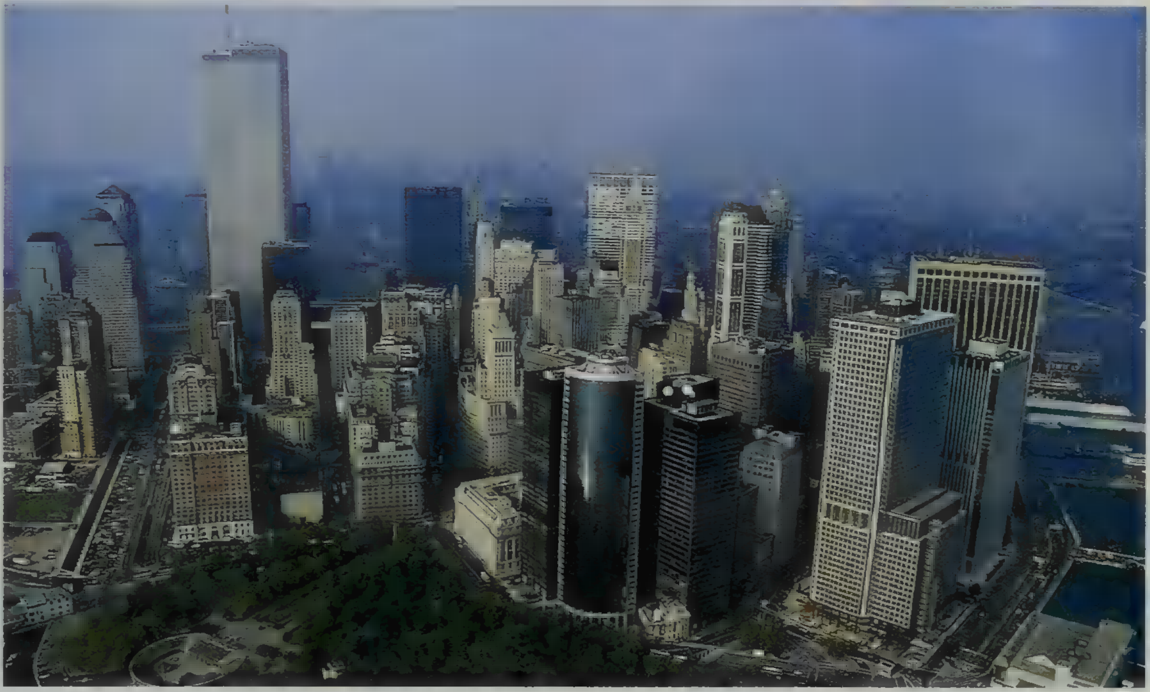
attan's skyline is changing. While Wall
: has adapted to the technological
cements and competitive pressures
ing American corporations, the real-
market has not been so agile. A team
rising specialists from New York City's
rtment of City Planning (DCP) and rep-
tatives of local real-estate and corporate
sts has made a bold move to stave off
er. Their efforts should serve as a
, if imperfect, model for redevelopment
gies in urban centers across the
y.

lan for Lower Manhattan, unveiled in
and an alternate scheme developed by a
of students at Columbia University's
ric Preservation Program, were the
t of "Reviving Lower Manhattan: Pre-
g the Past to Ensure the Future," a
sium sponsored by the Graduate
l of Architecture, Planning, and Preser-
at Columbia in March. The symposium
led a forum for discussing the insightful
ns proposed in both plans, which
e mixed-use residential and commercial
, tax incentives for owners and tenants,
integrated transportation network.

g it up

earlier era, "getting out of the way was
st constructive thing planners could do
ure progress." This sentiment, invoked
symposium by Joseph Rose, chairman
New York City Department of City
ing, as a reminder of more contentious
ng efforts in the past three decades, is
y absent from the plan.

operative atmosphere between the
DCP and the local real-estate and cor-
communities is a precedent that, if
ed more broadly, might, for example,
orestalled the present threat to
go's architectural heritage [RECORD,
1996, page 15] that has arisen from its
lebated landmarks legislation. And
ooperation might ensure the success of
st-published plan for Washington, D.C.,
as formulated without the input of the
eal-estate community. Despite this
le cooperative effort, the authors of the
ave forged compromises that may
sely affect Lower Manhattan's distinct
of place."


© Ben Russell

To encourage a 24-hour community, the plan relaxes the controls that regulate the placement and density of residential space. The "density penalty," a clause in the city's 1961 Zoning Resolution that prohibited residential spaces smaller than 1,800 square feet, has been revised to allow developers to now offer units as small as 900 square feet. As Carl Weisbrod, president of the Alliance for Downtown New York noted, "this is still large, but is a much more reasonable size than was permitted under the previous regulation." Maybe, but a 900-square-foot, market-rate apartment is unaffordable for corporate support staffers who earn a wage below the $131,000 cited in the plan as the area's average. While people may be priced out of the area, the greater question will be how these new residents alter the three-centuries-old tradition of commerce in Lower Manhattan.

Doomed to repeat itself?

But perhaps most troubling is the plan's myopic vision for new development. Zoning changes contemplated by the city, and rightly criticized by the Columbia students in their plan, recognize that the "tower in the plaza" is not a viable paradigm for the irregular blocks of Lower Manhattan. But the changes, which would encourage more as-of-right development and more closely regulate the building envelope and street wall, don't go far enough.

While the plan does include a recommendation to study the historic resources in the area and suggests a certain affinity for landmarking significant structures, it does not fully embrace the city's landmarks legislation. In ignoring local landmarks laws, which compels developers to comply with design standards, and turning an equally blind eye to the demonstrated economic benefits of designated historic districts, the planners have left blocks of low-rise buildings at the periphery of the historic core vulnerable to unrestrained development and have only implicitly acknowledged the value of the area's historic resources.

Changing the guard

The shortcomings of the plans proposed by the city and the Columbia students may have less to do with the complexity of the issues at hand than with the zoning and planning tools they incorporate and the preconceptions of their authors. New ideas need to be brought to the table; a challenge best left to the students, who were not allowed to present their findings at the symposium, but who will become the next generation of influential residents and planners in America's cities.
Derek H. Trelstad

Trelstad was formerly Senior Editor of Building Renovation *magazine, and is now a designer with Friedman & Oppenheimer Structural Engineers, New York City.*

Design

Briefs

Competitions update

◆ Semi-finalists in the competition for the Cathedral Square Project in Downtown Los Angeles, sponsored by the local Archdiocese, are: Santiago Calatrava of Zurich; Frank O. Gehry & Associates of Santa Monica; Rafael Moneo of Madrid; Morphosis of Santa Monica; and Venturi Scott Brown & Associates of Philadelphia. The winner is to be selected this month.

◆ Peter Hau is the winner of "Public Property," an ideas competition for the redesign of Governors Island—a U.S. Coast Guard base in New York Harbor scheduled to close next year—sponsored by the Van Alen Institute to spark discussions with officials in charge of the conversion project.

Awards at home and abroad

◆ The American Academy of Arts & Letters presented its 1996 Gold Medal for Architecture to Philip Johnson, who turns 90 in July; the Brunner Prize to Tod Williams and Billie Tsien; and the Academy Award in Architecture to Maya Lin.

◆ Austrian-born architect Harry Seidler, who practices in Sydney, Australia, is to receive the 1996 Gold Medal from the Royal Institute of British Architects on June 25.

Woods vs. Universal City Studios

New York City architect Lebbeus Woods has secured a federal injunction against further use or distribution of the film *12 Monkeys* based on the film makers' unauthorized use of a built version of a chair which appeared in his 1987 drawing "Neomechanical Tower (Upper) Chamber," according to the *New York Law Journal*. If Universal City Studios obtains authorization from Woods, the movie's distribution can proceed.

Community design

"Community Design Opportunities," a resource-rich site on the World Wide Web, was posted last month by architect Bryan Bell of Design Corps, Gettysburg, Pa., to "bridge the gap between the architectural and community-development sectors." It includes a directory of community design centers, national nonprofits, travel and educational programs, and a guide to working with nonprofits. Address: http://www.bbll.com/designcorps.

James Rouse, 1914-1996

Civic-minded real-estate developer James Rouse, who helped shape the post-war American landscape, died April 9 at age 81. ■

Berkeley, California

Holt, Hinshaw and EKONA Wins Joint-Venture Competition

© Doug Salin

A joint venture of Holt, Hinshaw Architects and EKONA Architecture + Planning, both of San Francisco, has won a competition for the $12.65-million Berkeley Public Safety Building, the first phase of a new Civic Center. Taking a fresh, techno-humanistic approach to the civic realm, the scheme has a chameleon-like exterior of façades; board-formed concrete, plaster, wood, and metal; and a roof-mounted airfoil for cooling. The 62,000-sq-ft project received approval from the Berkeley City Council last month. Construction is to begin next summer. *A.B.*

Washington, D.C.

Planners Take the Long View

On March 26, the National Capital Planning Commission (NCPC) of Washington, D.C., unveiled *The Monumental Core Framework*, a draft plan to guide the city's long-term development and preservation strategies. Only the third comprehensive plan for the nation's capital after L'Enfant's in 1791 and the McMillan Commission's in 1901, the NCPC's sweeping proposal includes an integrated system of transit centers, water taxis, and new rail lines; the removal of obsolete bridges and freeways that presently fragment the city; creation of some 11 miles of public waterfront for recreation activities; revitalization of key streets as civic gateways; and construction of museums and memorials in areas that would benefit from economic investment.

Five years in the making, the draft plan was developed by the NCPC with local and federal agencies, community groups, planners, and architects. NCPC chairman Harvey Gantt, an architect based in North Carolina who is running against incumbent Senator Jesse Helms in the upcoming elections, says the plan "seeks to correct . . . uneven development in the city."

But with real-estate interests seemingly left out of the planning phase, a crucial component for implementation may be missing. The final plan is to be published in December. *A.B.*

Kuala Lumpur

Look Who's Tallest

After 23 years of life at the top, the Sears Tower in Chicago has lost its designation as the world's tallest building (by 33 feet) to Cesar Pelli & Associates' 1,483-ft-tall Petronas Twin Towers, now under way in Kuala Lampur, Malaysia. The determination was made in April by the Council on Tall Buildings and Urban Habitat of Bethlehem, Pa., despite a controversy over its measuring criteria. *A.B.*

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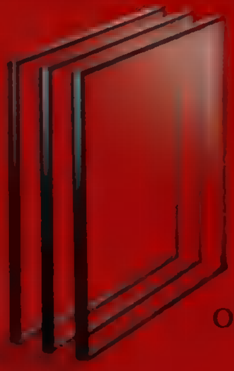

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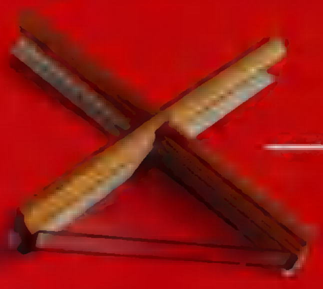

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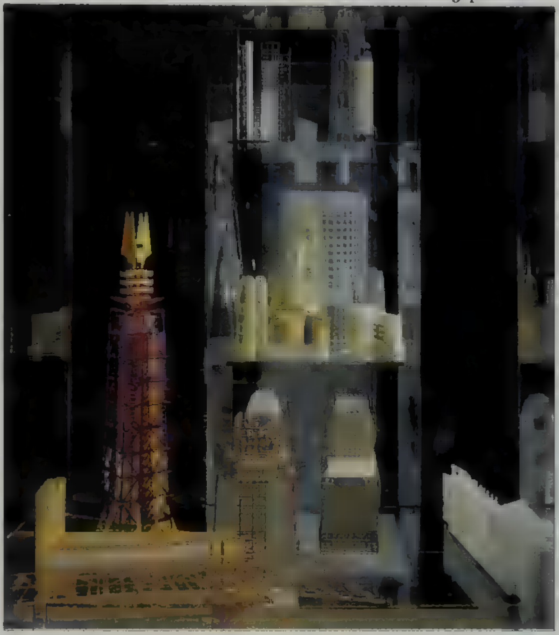
oul-Searching AIA Probes Architect's alue, Takes Fresh Look at Education

alue," the theme of this year's AIA conven-
n in Minneapolis, might not seem like a
)undbreaking or controversial theme, but
ırks did fly as some of the profession's
ders attempt to steer this supertanker of a
)fession along a different course. Promi-
nt on the program were seminars dealing
h design/build, construction management,
l other emerging project-delivery
thods. Gordon Chong, of San Francisco,
)selytized for AIA's "Practice and Prosper-
" initiative, which urges architects to re-
nceive their services away from the tradi-
nal project basis. Clients will turn to those
)fessionals who develop the skills to offer
"account manager" approach, Chong said,
ontinuum of services both "up-stream"
l "downstream" of traditional basic ser-
es [RECORD, February 1995, pages 32-35].

is approach was echoed by a panel of gov-
nment architects (strangely titled "What Lola Wants . . ."), who said that tighter budgets increasingly required their agencies to outsource more work, including management and team-leader functions that normally would be the bailiwick of the owner. Only those firms with skills in these tasks will succeed with government, they said.

© Marco Lorenzetti /Korab Hedrich Blessing photo



Forest of 8-foot plexiglas trees containing models celebrates second Firm of the Year award to Skidmore, Owings & Merrill.

But some saw these changes in a less sanguine light. At a Professional Interest Areas (PIA) Council meeting, one member said that providing strategic and real-estate services, for example, diluted the identity of architecture as a profession—an identity that is by and large widely understood and respected. An architect in the casino field was said to have succeeded with clients more after he dropped "architect" from his business title.

Another PIA participant noted that clients will expect architects to prove they have the expertise to do services outside their traditional boundaries. Education has got to be addressed, he said. But Chong felt that changes in architectural education will

Continued on page 27

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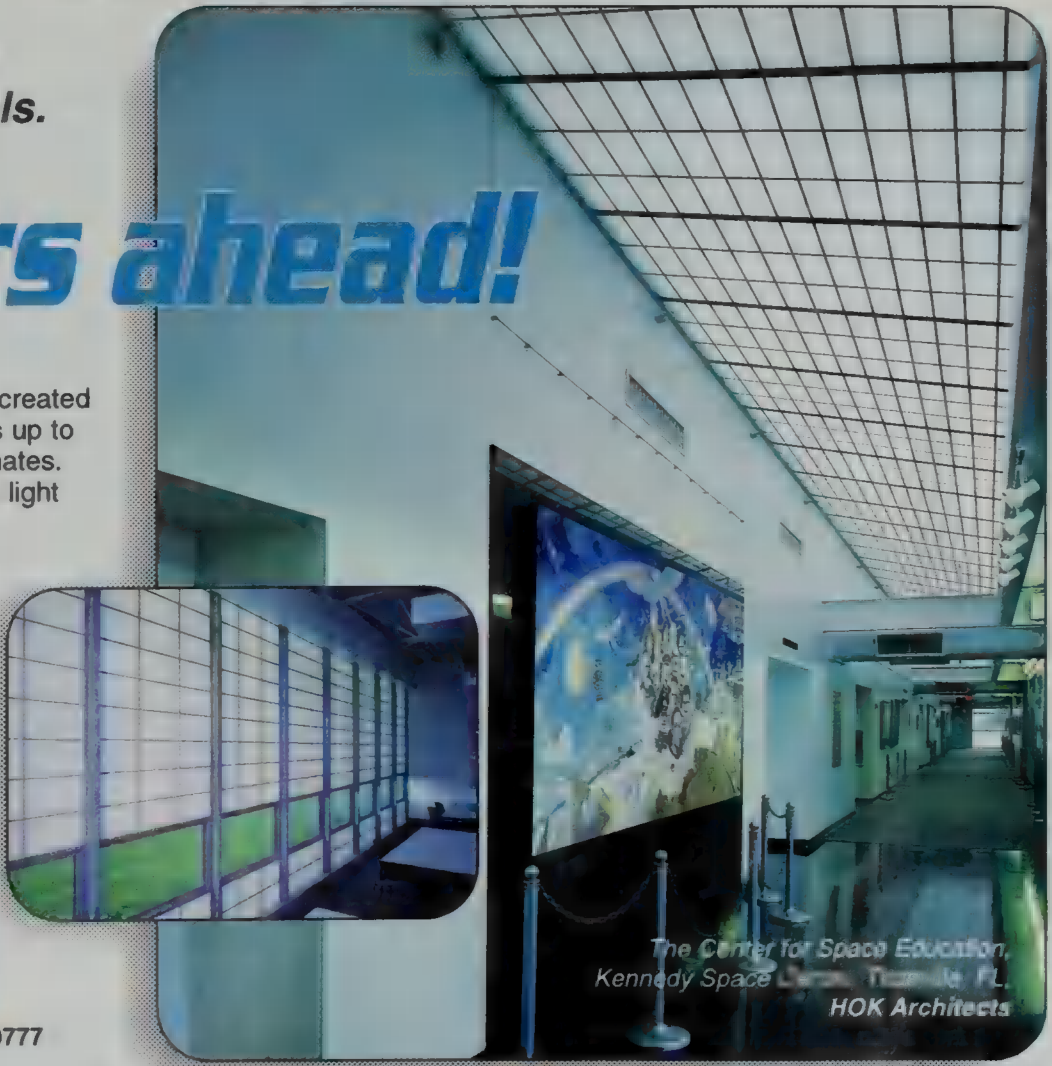
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AIA *Continued from page 25*

inevitably follow the profession's realignment. This debate seemed to be ahead of the much-discussed Carnegie report on architectural education, and the recently released study of architectural and engineering education by the National Academy of Sciences.

Also known as the Boyer report (*Building Community: A New Future for Architecture [sic] Education and Practice*, reviewed in RECORD, May 1996, page 22) it was discussed at two sessions, including the annual Walter F. Wagner Education Forum, sponsored by RECORD and AIA. While few had read the report, those who had done so noted the absence of any prescriptive call to action. Instead, the report's seven goals were seen more as a framework for discussion.

In other developments

◆ Resolution 96-1, which had run a rough course through many chapters before a unified version won a unanimous vote at the convention, was significant not only because of its aims (broadbased-housing programs for the needy) but for its deliberate call to insert the housing issue into the Presidential campaign. It still has to be ratified by AIA's Board, which meets in September.

◆ 3M-company executive Ronald A. Mitsch placed his slant on the "value" theme. His company, which has spent $500 million on construction in the past five years, looks to its architects for "timeliness, a cost/value ratio that makes sense, quality, working condition-enhancement, environmental awareness/energy efficiency, and design that enhances the corporate culture."

◆ Brooklyn sole practitioner Joseph Vance impressed a large audience with his dexterity in leveraging information technology in order to profitably service an array of small projects.

◆ The keynote speaker, New York City architect John Belle, aimed the "value" theme at what he saw as the architect's proper role: "There are now lots of other experts at [our] job meetings offering insights [into technical issues, budgets, and value engineering] . . . the architect must change from individual visionary to key collaborator. . . to have a strategic impact upon this team-oriented process."

◆ The design-review process came in for some hard knocks in a talk by San Francisco architect Arthur E. Stamps, III. Nearly all cities have it, said Stamps, but in his view it doesn't necessarily produce better cities. To deal with it, architects must apply "dispute-resolution skills" (PC for seeing the other fellow's point of view), and offer community groups a positive, unifying vision.

◆ Attendance was at 9,200, up 30 percent from 1995. One reason, AIA executive vice president Terrence M. McDermott told RECORD, is a 44 percent cut in the registration fee. The fee is to drop another 50 percent next year, and disappear altogether in 1998. To make up lost revenue, more exhibitors are expected due to the higher attendance.

Los Angeles architect Ronald A. Altoon was elected AIA president for 1998. Elected vice-presidents were Neil E. Strack of Illinois, John R. Sorrenti of New York, and Richard E. Fry of Michigan. Brian P. Dougherty of California becomes secretary. *JSR/KDS/SAK*

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Lessons in Making Cities Work

The American City: What Works, What Doesn't, *by Alexander Garvin. New York: McGraw-Hill, 1996, 475 pages, $60*

Reviewed by Todd W. Bressi

The title of this book is both celebratory and defensive—a recognition that while some aspects of cities can inspire us, there are a lot of things that need to be fixed. Alexander Garvin—an architect, developer, and New York City planning commissioner—sifts through a century of planning experience to find plenty of lessons on how to stimulate healthy urban development.

The American City offers a survey of public attempts to shape city development and is organized into chapters about basic themes like parks, retail areas, housing, land-use regulation, preservation, and comprehensive planning. The well-researched text combines urban history with case studies of specific projects and programs, rather than dwelling on abstract theories about policy or process. At the same time, Garvin is not bashful about stating his own position—that successful planning initiatives must consider factors such as the market, location, design, financing, and time, and that they must be concerned about manipulating ongoing change, not prescribing visionary end states.

Garvin implies that the most critical issues cities face are capturing capital investment, expanding economic activity, and retaining middle-class residents. He wisely argues that city planning's ultimate goal should be to craft public actions that "produce a sustained and widespread private-market reaction." He poses tough questions for quick-fix projects like convention centers and stadiums, and makes it clear that improving the housing stock and increasing homeownership in poor sections of town also deserve civic attention.

Because of its breadth and evenhandedness, *The American City* is bound to be adopted as a text in courses on city planning; it is better grounded in how cities really work than the [illegible] "green book" (*The Practice of Local Government Planning*) that I read in graduate school. For students, it clearly reveals the dynamic between public policy and the physical form of cities.

But *The American City* leaves its readers wanting in many ways—the lack of a comprehensive bibliography is particularly aggravating. Garvin's insistence on evaluating mature programs or projects enables him to cull his observations from decades of real experience. But it also makes the book seem outdated, since current concerns and initiatives receive little attention.

For example, Garvin lauds Portland's and Denver's transit malls for focusing private investment downtown, but takes up neither the matter of using transit investment to coalesce suburban growth, nor of helping scattered "edge cities" mature into coherent urban centers.

He writes off urban manufacturing, despite recent research that argues some manufacturers thrive in cities because they offer diverse human and capital resources.

Garvin's focus on physical planning also becomes a hindrance when he declares that planners work through public investment, regulation, or development incentives—ignoring the impact everyday municipal services like sanitation, security, and maintenance of the public realm have on investment decisions. In some places, these responsibilities are so poorly managed that business and citizen groups are assuming them.

Increasingly, our footloose society regards places as things to consume and then abandon when we lose interest. City officials must cultivate not only capital investment, but also attachment to place: neighborhoods, shopping districts, the public realm. Coupled with Roberta Gratz's *The Living City* and two books inspired by the Rudy Bruner Award, *Urban Excellence* by Philip Langdon and *Breakthroughs* by Neil Peirce and Robert Guskind, *The American City* can play an important role in educating architects, planners, developers, and city officials. ■

Todd W. Bressi is executive editor of the [illegible] and teaches urban design at [illegible]

Briefly Noted

The New American Ghetto, *by Camilo Jos Vergara. New Brunswick, N.J.: Rutgers University Press, 1995, 245 pages, $50.*
For nearly 20 years, photographer and socio ogist Camilo Vergara has documented the insidious process of urban decay. Returning to the same blocks in the same neighborhoods of New York, Newark, Los Angeles, Chicago, Detroit, and Gary, Indiana, year after year, he has built an archive of photographs that shows in a nearly clinical manner what happens to once-thriving place when abandonment, poverty, and fear take over. As presented in this book, these photographs, coupled with Vergara's verbal observations, serve as a record of urban dev astation and a powerful indictment of negle

Encyclopedia of American Architecture, Second Edition, *by Robert Packard and Balthazar Korab. New York: McGraw-Hill, 1995, 724 pages, $90.*
Handsomely produced with all photographs in color, this book covers a lot of ground—from adaptive use to zoological buildings, with stops along the way for Furness, Fran and Venturi, Robert. The roster of architect though, is less than encyclopedic and some entries—such as "patron, architectural" an "history of architecture"—are too broad to properly covered in just a few pages.

Hariri & Hariri, *compiled by Oscar Riera Ojeda. New York: Monacelli Press, 1995, 19 pages, $35 (paper).*
The first in a series of books on members o "the next generation of architects and desi ers," this attractive monograph shows 30 projects by the New York-based sisters Gis and Mojgan Hariri. Rather than being asse bled chronologically, the projects (both buil and unbuilt) are organized by themes—suc as politics and power, global culture, and sp ituality and otherness. Short essays by Kenneth Frampton and Steven Holl serve bookends to the main body of the publicati

Winning By Design: Architectural Competitions, *by Judith Strong. Oxford: Butterworth, 1996, 200 pages, $38 (paper).*
While focusing mostly on the U.K., this bo can be useful to architects in other countri too. The author does a good job of framing the debate over competitions and offers so advice on how to participate in them.

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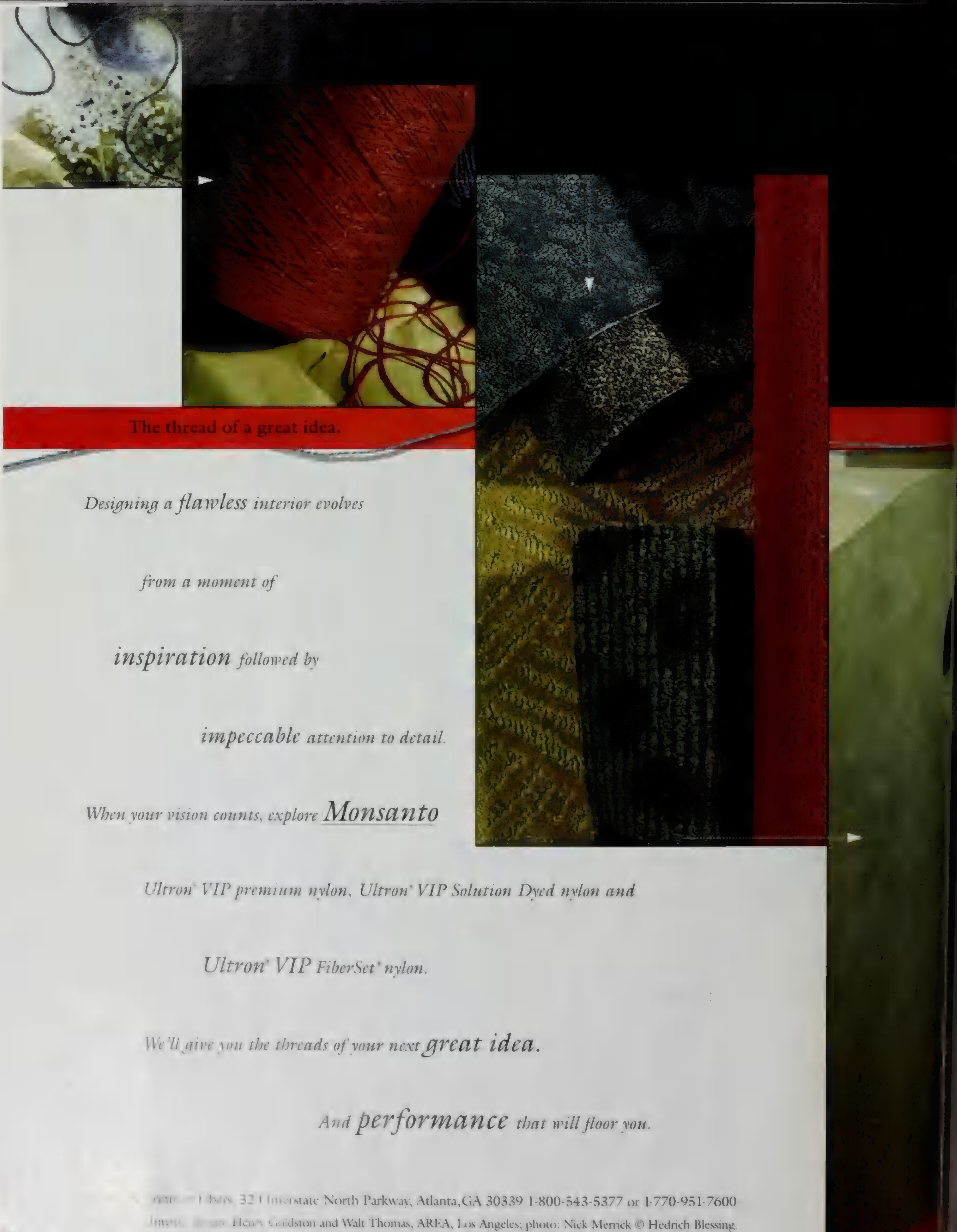
rden, Portland, Oregon. Architect: Ellerbe Becket



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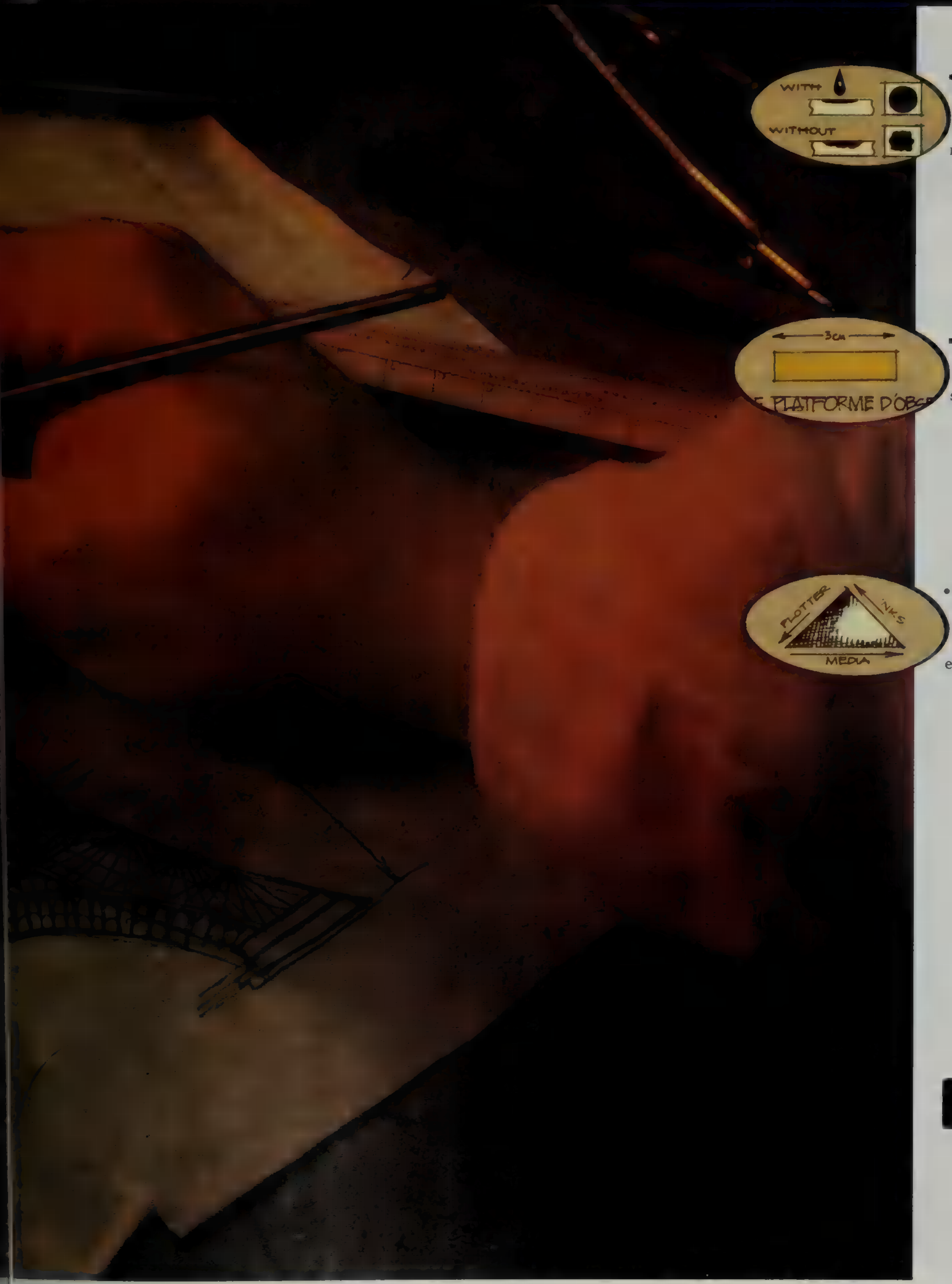

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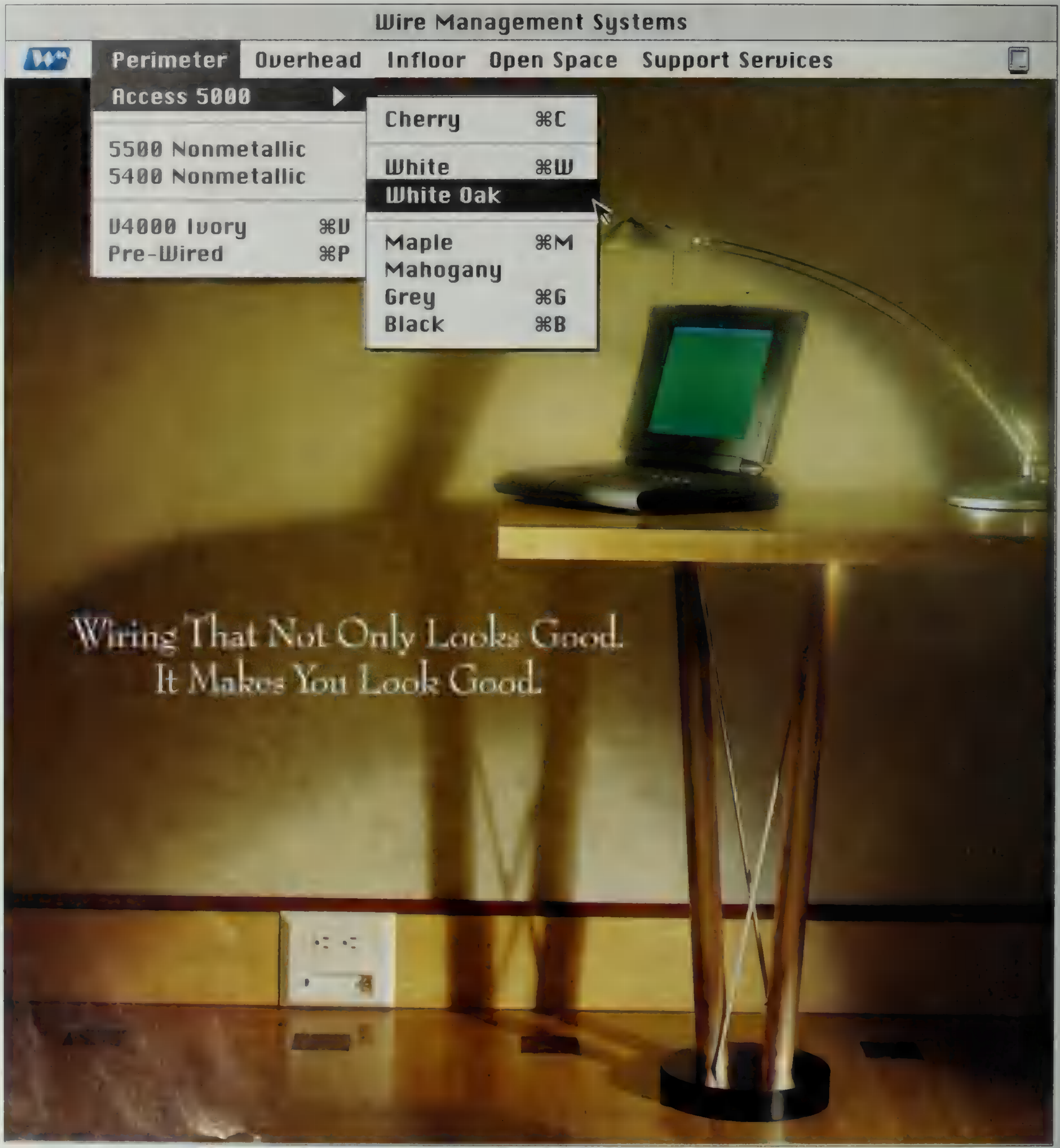

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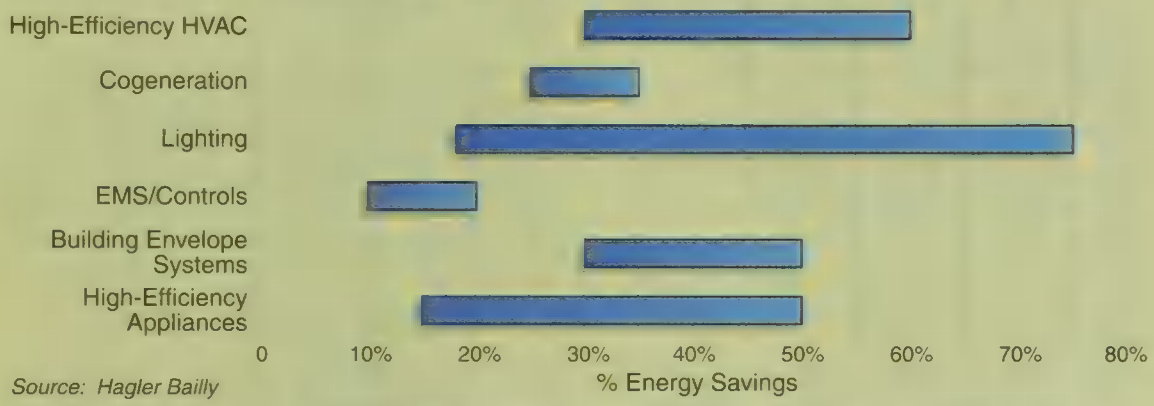
ndicators

ots of energy efficiency to be found

hough building systems have become teadily more energy-efficient, a global look t potential savings suggests there's much rogress still to be made. The study estinates average growth of the energyfficiency market at 6 percent annually hrough 2015. Market share will increasingly nove from developed countries to less-develped countries, so techniques developed here nay prove highly exportable. Efficiency will gure prominently in this month's UN Iabitat conference in Istanbul. ■

Potential Energy Savings in Construction Technologies



Source: Hagler Bailly

Charts by Leanor Glynn

uilding costs solid

fter remaining essentially flat for the last ew years, building costs are edging up ationwide. This year's rise will exceed the ate of inflation if it keeps up. Increases were teepest in the country's center half: Denver, t. Louis, Kansas City, Cleveland, Minneapos, Pittsburgh. With Olympics construction earing completion, Atlanta is flat, as is oston, Los Angeles, San Francisco, Dallas, nd Baltimore. Prices in midwestern cities ave shown steady strength, while those in e Northeast, like Philadelphia and New ork, have begun moving upward after a long oribund period.

ommodity price swings, such as those for mber, have moderated, suggesting that bor rate increases may finally be kicking in. ill, construction inflation is hardly a cerinty. As this month's market forecasts show ollowing pages), slackening housing and tail demand will free up labor for growing uilding types like offices and lodging. Even isy prison builders are under cost pressure om penny-pinching government agencies. ■

Building Cost Indexes

	12/90	12/91	12/92	12/93	12/94	12/95	5/96	% change from 4/96	% change from 12/95
Atlanta	2238.80	2278.83	2404.75	2477.13	2480.55	2412.12	2470.10	+0.7	-1.6
Baltimore	2579.90	2508.06	2607.76	2673.24	2830.66	2818.21	2856.29	+0.6	+0.5
Birmingham	2149.96	2189.75	2279.26	2352.15	2439.28	2509.21	2533.69	-0.2	+2.1
Boston	3110.03	3102.31	3355.57	3539.63	3601.94	3549.18	3569.19	+0.1	+0.2
Chicago	2893.6	3034.72	3162.99	3325.70	3415.62	3446.51	3470.99	0.0	+2.0
Cincinnati	2638.73	2674.15	2817.16	2920.20	3001.15	2942.02	2953.42	+0.1	+1.8
Cleveland	2886.93	2903.81	2903.1	3088.76	3218.65	3273.15	3305.79	+0.2	+3.3
Dallas	2061.61	2215.88	2278.21	2307.62	2448.62	2433.04	2474.70	+0.7	+0.8
Denver	2321.28	2375.26	2438.39	2501.00	2608.72	2661.49	2711.27	+0.2	+6.1
Detroit	2974.47	3046.92	3136.74	3278.20	3424.95	3459.88	3485.99	0.0	+2.6
Kansas City	2645.28	2637.20	2677.21	2873.20	2916.25	2889.17	3013.84	+2.8	+3.7
Los Angeles	3020.51	3097.83	3198.66	3359.03	3420.42	3427.26	3412.81	0.0	+0.3
Minneapolis	2648.43	2711.5	2811.14	2989.48	3131.05	3129.52	3145.84	+0.5	+3.0
New Orleans	2220.20	2260.52	2360.24	2330.86	2469.21	2499.08	2560.01	0.0	+1.8
New York	3847.21	3997.91	4151.28	4343.76	4458.36	4557.44	4603.96	+0.1	+2.3
Philadelphia	3040.85	3169.81	3130.58	3532.34	3480.78	3563.18	3563.18	0.0	+2.4
Pittsburgh	2717.08	2807.73	2954.64	3038.97	3218.37	3287.92	3326.02	+0.7	+3.4
St. Louis	2602.16	2686.93	2743.01	2840.58	3091.81	3089.59	3134.74	-0.1	+4.3
San Francisco	3245.04	3270.90	3298.09	3463.34	3519.17	3561.60	3534.30	0.0	+0.6
Seattle	2552.58	2715.04	2787.74	2948.18	3024.48	3046.50	3088.93	+2.2	+2.2
20-City avg.	**2702**	**2751**	**2834**	**3009**	**3110**	**3127.80**	**3160.75**	**+0.4**	**+2.1**

Source: Engineering News-Record, Construction Economics Department. The Building Cost Index combines 68.38 hours of skilled labor weighted by the 20-city average of bricklayers', carpenters', and structural ironworkers' rates, plus 25 cwt of standard structural steel shapes at the mill price, plus 22.56 cwt (1.128 tons) of portland cement spot-priced locally, plus 1,088 board-ft of 2 by 4 lumber spot-priced locally. The base year is 1913 = 100. To compare a given city's costs by percent, divide one index into the other. Example: the index for a city for one period (200) divided by the index for an earlier period (150.0) yields 1.33, which means the costs in the later period are 33 percent higher than the earlier period. Likewise, the earlier period's costs are 75 percent of those in the later period (150.0 divided by 200.0 = .75 or 75 percent).

he Profession This Month

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Short Takes

◆ **Defective-siding settlement:** Claims of premature failure of residential siding made from oriented strandboard have been settled, according to Louisiana-Pacific, the target of homeowner suits [RECORD, October 1995, pages 21, 111]. The company will extend its warranty and honor claims validated by third-party adjusters. It has set aside $275 million to cover siding replacement.

◆ **Volatile construction volume:** Contracted construction volume jumped 7 percent in March, according to F.W. Dodge, after a drop in February and a rise in January. Nonresidential construction surged 17 percent, but the three-month 1996 total is still 13 percent below the 1995 period. Residential construction was up for the month and 12 percent ahead of the same period last year.

◆ **What happens when the firm founder passes away?** 49 percent of firms don't know, says a survey. Revised, *Ownership Transfer: Options and Strategies,* from the American Consulting Engineers Council ($69 AIA; $99), offers guidance: 203/347-7474. ■

Two Crystal Balls

AIA's Kermit Baker describes shifts over the next 15 years that will affect the kinds of construction put in place; Robert Murray updates the 1996 Dodge Construction Volume forecast.

By Robert Murray and Kermit Baker

Over the next 15 years, building activity will increase an average of 1 percent per year, largely in line with population growth, reports Kermit Baker (with assistance of F.W. Dodge's Robert Murray), in AIA's "Changes in Construction Markets: The Next 15 Years" (AIA bookstore: 800/365-2724; $7 members/ $10 non-members). Nearly all the growth in non-residential spending will come from the commercial and residential categories. Office construction is expected to bounce back sharply on a percentage basis, although today's levels are very depressed. Institutional categories are expected to be stable.

The shift in recent years to renovation as a higher percent of construction spending will continue. By 2010, the market for work on existing buildings will be even larger than for new construction.

Mirroring population growth, most new construction over the next 15 years will be centered in the South and West—regions expected to capture more than 80 percent of population growth. Migration from other parts of the country will swell these regions, and a disproportionate share of immigrants is likely to settle in the Sunbelt region, though many also will remain in major gateways, such as San Francisco, Miami, Chicago, and New York.

The changing building-type mix

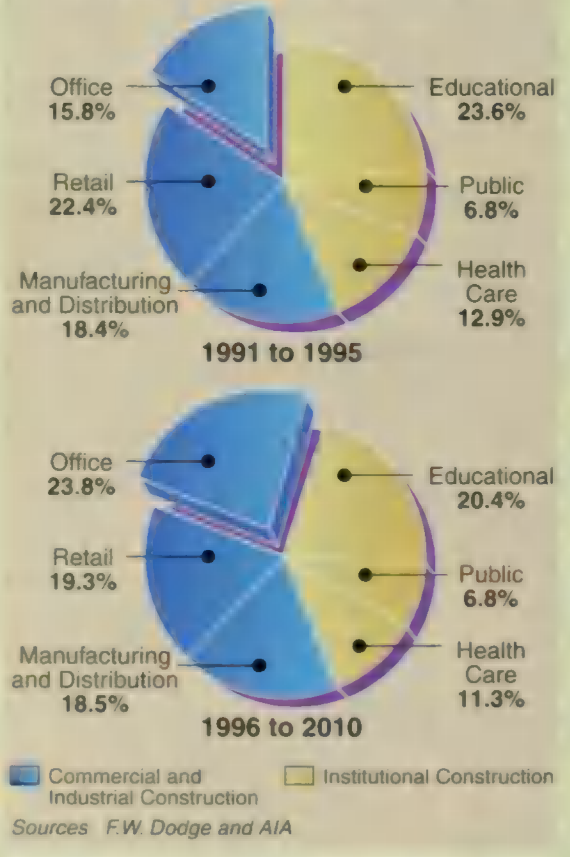
◆ *Residential:* Much of the population growth will be among households in their 40s and 50s, who traditionally buy bigger, more expensive homes. Households in younger age groups will shrink, undermining the rental and first-time home markets. Married couples without children are the second-fastest-growing household type. By 2010, most of this group will be "empty nesters." The high percentage of single and two-person households bodes well for smaller houses with many amenities on easy-to-maintain lots or condominiums. Home owners in this group will be in their peak-earning years; these are [illegible] remodeling years. Owners will add home offices, security features, and apartments for aging relatives.

Kermit Baker is AIA's chief economist. Robert Murray is vice president of economic [illegible] McGraw-Hill's Construction [illegible] Group.

Growth in schools and colleges

The recent rebound in school construction will continue over the next decade [spotlight, following pages]. Remodeling will be sustained by lower dropout rates and the needs of aging stock. New construction growth will follow the "echo boom" bulge to high schools and colleges, while K-8 will slacken. Colleges will benefit because not only are more students finishing high school, they are attending college in record numbers. Higher college enrollments also reflect the growing numbers of older adults returning to complete degrees or obtain advanced training.

Office Volume Set to Grow



Sources F.W. Dodge and AIA

While businesses will continue to control costs through careful use of space, the growth of service employment bodes well for offices

Stable volume for institutional work

◆ *Health care:* With the aging of the population, new health-care construction over the next 15 years will be primarily clinics, chronic-care facilities (both inpatient and outpatient), and residential facilities. Cost-containment pressures will force ever more efficient use of the existing building stock. After relatively flat construction levels over the next decade and a half, health care will be poised for a surge when baby boomers move into their 60s. That older people seek care fo chronic conditions doesn't necessarily translate into more hospital beds, though, since more of these procedures are now handled in ambulatory settings. In the next 15 years, living arrangements for the elderly will have an important influence on health-care construction. Since three quarters of the over-85 population live outside nursing homes, assisted-living options will become more importan

◆ *Public buildings:* Justice construction activity will remain strong as the population most likely to turn to crime (18- to 24-year-olds) increases. At present, justice projects account for approximately two-thirds of public construction spending. Even so, jail and prison construction has failed to keep pace with growth in the inmate population. Other types of public construction will continue to see little expansion as budget pressure limit government job growth.

Offices up from today's low base

◆ *Retail:* Retail-construction spending will retreat from current strong levels as excess space and weaker sales growth force retaile to rethink expansion plans. The aging population will further dampen demand, as older households spend a smaller share of their income in stores. Recent growth in retail has come more from new and revamped retail formats stealing market share from existing formats than from consumer demand. The relationship between retail activity and spac built is imperfect. A better retail mousetrap may well make existing formats obsolete, spurring construction activity.

◆ *Office:* After an eight-year recession, risin rents, falling vacancies, and continued grow in office employment now ensure that construction activity will return to levels close t those in previous decades. Today, nearly 80 percent of office jobs are in services and the finance, insurance, and real-estate sectors. While these areas will still generate virtuall all future office employment, job growth is headed for a slowdown in about a decade as

e Shape of 1996

llowing 1995's gain of 2 rcent, total construction activ- is projected to advance 4 rcent this year. Single-family using will have to provide ch of the upward impetus, en the deceleration now being perienced by other sectors.

rly data for 1996 shows that s is indeed taking place, hough it remains to be seen at impact higher mortgage tes will have on the housing rket. Funding limitations for blic-works construction may e as growing unmet needs ome more glaring. The still- proving components of the ome-property group should ten that sector's overall loss of mentum. R.M.

1996 National Estimates

Dodge Construction Potentials

June 1996

Nonresidential Buildings

		1995 Actual	1996 Forecast	Percent Change
Floor Area (in millions of sq. ft.)	Office Buildings	113	125	+11
	Stores and Shopping Centers	266	235	-12
	Other Commercial	320	317	-1
	Manufacturing Buildings	160	150	-6
	Total Commercial & Manufacturing	859	827	-4
	Educational,	176	184	+5
	Hospital & Health	69	67	-3
	Other Nonresidential Buildings	171	170	0
	Total Institutional & Other	416	421	+1
	TOTAL NONRESIDENTIAL BUILDINGS	1,275	1,248	-2
Contract Value (millions of $)	Office Buildings	$14,577	$16,300	+12
	Stores and Shopping Centers	16,436	15,350	-7
	Other Commercial	15,419	16,325	+6
	Manufacturing Buildings	12,374	12,125	-2
	Total Commercial & Manufacturing	$58,806	$60,100	+2
	Educational	$21,445	$22,775	+6
	Hospital and Health	10,707	10,450	-2
	Other Nonresidential Buildings	21,326	21,075	-1
	Total Institutional & Other	$53,478	54,300	+2
	TOTAL NONRESIDENTIAL BUILDINGS	$112,284	$114,400	+2

Residential Buildings

		1995 Actual	1996 Forecast	Percent Change
Dwelling Units* (thous. of units)	Single Family Houses	989	1,015	+3
	Multifamily Housing	275	290	+5
	Total Residential Buildings	1,264	1,305	+3
Floor Area (millions of sq. ft.)	Single Family Houses	1,869	1,918	+3
	Multifamily Housing	301	315	+4
	Total Residential Buildings	2,170	2,233	+3
Contract Value (millions of $)	Single Family Houses	$110,211	117,300	+6
	Multifamily Housing	17,562	19,100	+9
	Total Residential Buildings	$127,773	136,400	+7

Nonbuilding Construction

		1995 Actual	1996 Forecast	Percent Change
Contract Value (millions of $)	Transportation Construction	$41,630	$41,550	0
	Environmental Construction	18,260	18,150	-1
	Total Public Works	$59,890	$59,700	0
	Utilities	$3,557	$3,650	+3
	TOTAL NONBUILDING CONSTRUCTION	$63,447	$63,350	0

All Construction

		1995 Actual	1996 Forecast	Percent Change
Contract Value (millions of $)	**Total Construction**	$303,504	$314,150	+4
	Dodge Index (1987=100)	117	121	

**F.W. Dodge basis*

In the short term, neither strengthening office nor hotel construction will offset weakening housing and retail. Over the next few years, commercial types will grow; institutional spending will stabilize.

investments in office technology pay off in the form of lower staff needs. Also, as "alternative-office" strategies take hold (from work-space sharing to telecommuting), companies will need less space.

◆ *Manufacturing and distribution:* Productivity gains in the industrial sector, coupled with generally slower growth in the economy, will limit the need for additional manufacturing and distribution capacity. While growth in merchandise exports will partially offset this dampening effect, the amount of industrial construction activity in the next 15 years will still be lower than in the previous 15.

A further damper for manufacturing is that, as the population ages, it spends less on goods and more on services. Traditional manufacturing has suffered inroads from cheaper foreign producers, forcing American manufacturers to focus on more technologically sophisticated products. Thus R&D facilities are the fastest growing manufacturing construction category. Improved inventory management will continue to limit warehouse demand for the next 15 years, as producers seek higher profits by squeezing the distribution system.

> *"Trends dictate slow but steady growth in construction spending over the next 15 years. . . . More than half of all dollars will go into additions and alterations."—Kermit Baker*

The short term: struggling for growth

Construction volume grew a modest 2 percent in 1995, reports Robert Murray, of McGraw-Hill's Construction Information Group. Volume will continue to grow, but compared to the 8 and 9 percent growth rates between 1992 and 1994, the operative word is [illegible] Some sectors are expanding, but others continue to weaken; the net effect [illegible] small increase should [illegible] in the [illegible] for the fifth year in a row. There are still enough signs of a sluggish economy. [illegible] capacity utilization rates and [illegible] to suppose that the soft landing has been followed by a soft takeoff.

◆ *Single-Family Housing:* This sector's period of weakness ended during 1995's second quarter. The 1995 annual total of 989,000 units represented a 7 percent drop, but the pattern of activity over the course of 1995 set the stage for a generally higher volume of activity during 1996. The rise in mortgage rates bodes little support for the current brisk pace of single-family housing.

Income-property outlook mixed

The 1996 economy, with growth in the range of 2 percent to 3 percent, will have a varied impact on income-property sectors. Don't expect the 29 percent surge that occurred in 1994 or the 15 percent increase in 1995 (to a still-impressive one billion square feet). This growth was driven by hotels (up 57 percent in 1995); and warehouses (up 37 percent). While most of these categories are still well below their mid-1980s peak, the 1995 amount for stores was just 2 percent shy of its record 1985 amount.

Financing continues to be available, particularly as insurance companies and pension funds look again to real-estate investment. A recent Federal Reserve survey offers a cautionary note: it showed that banks had tightened lending standards toward the end of 1995 for the first time in three years.

◆ *Office:* Vacancy rates have moved steadily downward. The oversupply of office space has been reduced by 50 percent over the past four years. Rents in many markets are still too low to produce the cash flow necessary to justify new construction, but exceptions began to appear last year in suburban Atlanta, Washington, D.C., and Los Angeles.

◆ *Hotel* construction will remain on its upward trend in 1996, given the current healthy condition of the lodging and gaming industry. Hotel occupancy rates are in excess of 70 percent nationwide, while occupancies in Las Vegas hotel/casinos have risen to nearly 90 percent. Plans to develop new gaming properties are moving ahead in Atlantic City, as well as in such locations as Louisiana, Indiana, and Connecticut. Hotel chains also have begun aggressive construction programs in the mid-price and economy lodging segments; the luxury sector remains on hold.

◆ *Store* construction has boomed, so it now confronts its cyclical downside. The growth "big box" merchandisers and "category killers" played an important role in recent retail expansion, but the market is now suffering casualties. Even Wal-Mart reported lower fourth-quarter 1995 earnings, its first quarterly earnings decline in more than 25 years.

Institutional buildings inch upward

◆ *Healthcare*: Construction continues to adjust to cost-containment pressures, with shorter patient stays and hospital mergers meaning lower volume [see spotlight following].

◆ *Schools:* Renovation work is still an impor tant part of the institutional-building marke particularly as it applies to schools. Furthe increases are likely, given growing student enrollments through the end of the decade and replacement or renovation needs.

◆ *Prisons*: Construction in 1995 slipped fro its recent elevated volume, but it can be expected to bounce back. Unlike many othe project types, it is supported by virtually certain funding, given political priorities, a the fact that state prisons are operating at close to 130 percent capacity.

Weakness in transportation

The transportation appropriations bill for fiscal 1996 provided a slight 0.5 percent increase for highway construction, a surpr ing development given the deficit-reductio climate. More in keeping with the times w flat funding for airports, and declines for mass transit and Amtrak. ■

gional variations:
owth in 1995 was unevenly
read geographically, a pattern
at should continue. The South
ntral led the nation with a 6
rcent rise, followed by gains of
ercent in the South Atlantic
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ntral. The West edged up 1
rcent, as ongoing strength in
Pacific Northwest and moun-
n states offset continued
akness in California.

e Northeast lagged behind
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d steady. Initial data for 1996
gests that California is
ally emerging from its dol-
ms, but the prospects for the
rtheast remain questionable
en that region's corporate
offs and bank consolidations.

ewed expansion by both
ional latecomers, the West
l the Northeast, would be con-
ent with the rolling regional
very patterns evident since
1980s. R.M.

1996 Regional Estimates

Dodge Construction Potentials

June 1996

Contract Value (millions of dollars)	**1995 Actual**	**1996 Forecast**	**Percent Change 1996/95**		**1995 Actual**	**1996 Forecast**	**Percent Change 1996/95**
Northeast CT, ME, MA, NH, NJ, NY, PA, RI, VT							
Nonresidential Buildings				**Residential Buildings**			
Commercial and Manufacturing	$9,052	$8,800	-3	Single Family Houses	$10,782	$11,525	+7
Institutional and Other	9,519	10,125	+6	Multifamily Housing	2,535	2,650	+5
Total	$18,571	$18,925	+2	**Total**	$13,317	$14,175	+6
Nonbuilding Construction	$10,643	$11,325	+6	**TOTAL CONSTRUCTION**	$42,531	$44,425	+4
North Central IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI							
Nonresidential Buildings				**Residential Buildings**			
Commercial and Manufacturing	$13,743	$13,750	0	Single Family Houses	$24,255	$24,500	+1
Institutional and Other	13,063	12,600	-4	Multifamily Housing	3,692	3,825	+4
Total	$26,806	$26,350	-2	**Total**	$27,947	$28,325	+1
Nonbuilding Construction	$14,073	$13,950	-1	**TOTAL CONSTRUCTION**	$68,826	$68,625	0
South Atlantic DE, DC, FL, GA, MD, NC, SC, VA, WV							
Nonresidential Buildings				**Residential Buildings**			
Commercial and Manufacturing	$11,976	$11,875	-1	Single Family Houses	$27,431	$30,675	+12
Institutional and Other	11,200	11,425	+2	Multifamily Housing	4,428	4,725	+7
Total	$23,176	$23,300	+1	**Total**	$31,859	$35,400	+11
Nonbuilding Construction	$11,524	$11,275	-2	**TOTAL CONSTRUCTION**	$66,559	$69,975	+5
South Central AL, AR, KY, LA, MS, OK, TN, TX)							
Nonresidential Buildings				**Residential Buildings**			
Commercial and Manufacturing	$9,806	10,350	+6	Single Family Houses	$18,834	$19,700	+5
Institutional and Other	8,606	8,750	+2	Multifamily Housing	2,471	2,650	+7
Total	$18,412	$19,100	+4	**Total**	$21,305	$22,350	+5
Nonbuilding Construction	$11,508	$10,675	-7	**TOTAL CONSTRUCTION**	$51,225	$52,125	+2
West AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY							
Nonresidential Buildings				**Residential Buildings**			
Commercial and Manufacturing	$14,229	$15,325	+8	Single Family Houses	$28,909	$30,900	+7
Institutional and Other	11,090	11,400	+3	Multifamily Housing	4,436	5,250	+18
Total	$25,319	$26,725	+6	**Total**	$33,345	$36,150	+8
Nonbuilding Construction	$15,699	$16,125	+3	**TOTAL CONSTRUCTION**	$74,363	$79,000	+6

Prepared by the Economics Department, Construction Information Group, McGraw-Hill Information Services Company, Robert Murray, vice president, economic affairs.

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Features:

*Photo **A**...Automatic self-closing system.*

*Photo **B**...Composite [illegible] design with fire [illegible] coating*

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chools Face unding Bind

A $112-billion backlog in school remodeling and new construction is colliding with the public's reluctance to pay the bill.

Douglas Gantenbein

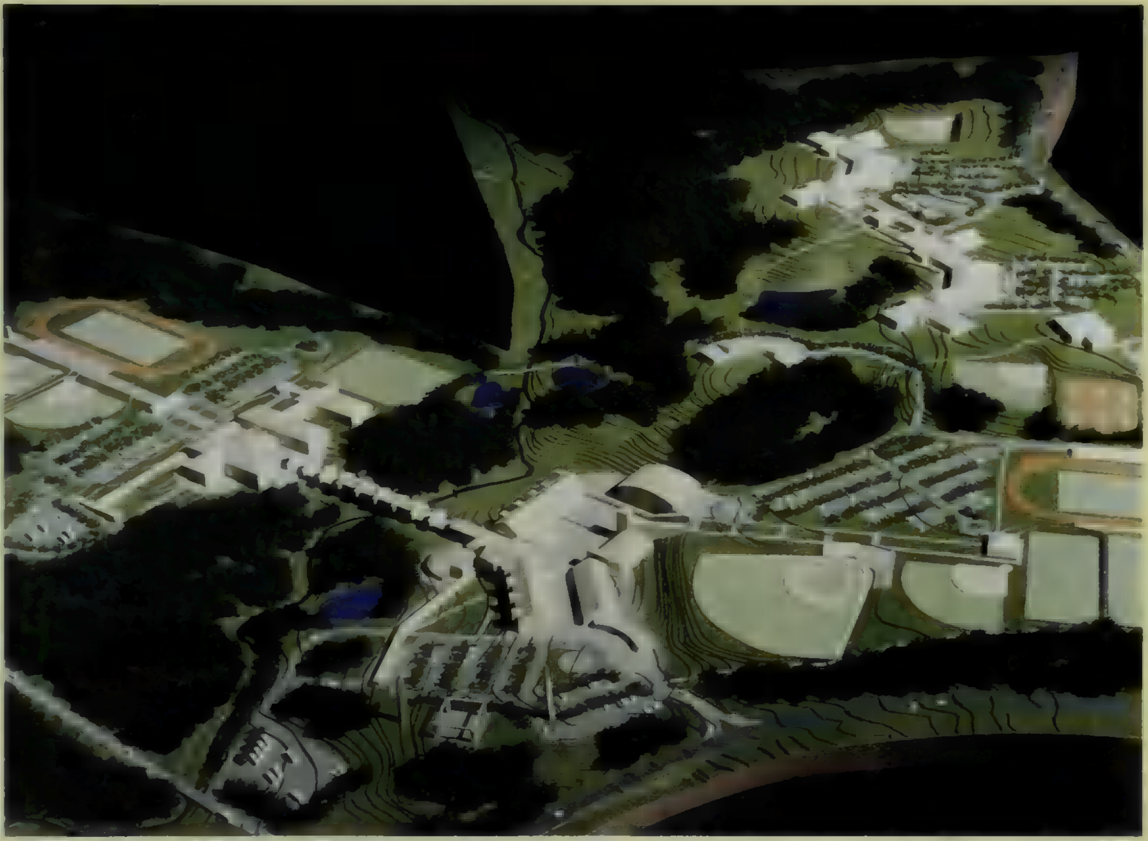
e Baby Boom's baby boom is knocking on
oolhouse doors. Hard. The number of ele-
ntary and secondary students hitting the
ks this fall will surpass the previous
ord of 51 million, set in 1971. That number
l likely leap to 56 million by 2004. And it's
just children of the celebrated post-World
r II generation crowding schools. Waves
mmigrants in Florida, Texas, and Califor-
also are creating enormous new
ssures. Moreover, few districts have kept
existing buildings. Century-old school
ldings crumble in New York City. Termites
nch on New Orleans schools, and a ceiling
Montgomery County, Ala., school col-
sed just 40 minutes after youngsters left
the day. All told, the problem is so severe
t the General Accounting Office says there
construction and maintenance backlog of
2 billion. Primary school spending, mean-
le, amounted to just $3.5 billion in 1994.

result of these two trends is an unprece-
ted demand for new school construction
remodeling. "The need is everywhere;
not overstated," says Michael Casserly,
ctor of the Council for Great City Schools
ashington, D.C., education policy institute
nted primarily to large school districts,
ady educational building has been the
ht spot in non-residential construction,
easing every year since 1983. AIA studies
v that in 15 years construction levels will
ven higher—40 to 50 percent higher than
ls seen in the 1980s, even allowing for
tion. Thus last year's figures, when all
ational-construction awards totaled $23
n, might not represent a peak.

re to find $112 billion

sunny forecast is clouded by uncertainty
who will pay the bill. Financing schools
enormously complicated and expensive
ess. But the process to arrange that
cing is Balkanized among local districts,
s, and to a limited degree the federal
rnment.

ost cases, ultimate responsibility for
ls gets pushed down to the local level.
e it runs smack into growing voter resentment over high property taxes. Another difficulty: Parents and voters demand better student performance before "rewarding" districts with new "toys" like schools filled with high-tech educational gadgets.



Boney Architects' master plan for Charlotte-Mecklenburg's Educational Village includes a middle school (upper left), a high school (bottom), and an elementary school (top right).

And teachers, too, are seeking a bigger part of the spending pie in higher compensation, claiming that quality instruction means more than fancy buildings. It doesn't help that most local property-tax measures, the usual instrument for local school funding, require a two-thirds majority. "That means every 'no' vote counts twice," says one unhappy school official.

Pressure now is on state governments to help finance new construction, but they are reluctant to share the burden. "You have all these governors running around talking about the quality of education," says Casserly. "They've been very paltry with their resources while being very generous with their rhetoric." Michigan revised its school financing mix in 1993 to reduce local property taxes and increase state aid. But, says Mary Fulton, a policy analyst with the Education Commission of the States, a Denver-based think tank, few others have followed suit.

There are a few bright spots. California voters—pioneers in tax resistance—in March approved a bond measure that will result in $2 billion in spending for K-12 school construction. School officials were ecstatic at the easy victory, particularly after narrowly losing a similar measure two years ago. Still, that bond will barely make a dent in a construction backlog of $7 billion.

Demanding design criteria; tight budgets

Architects are being forced to respond not only to tight budgets, but to dramatically changing roles for schools as well. Heinz Rudolf, a partner with BOORA Architects in Portland, Ore., says two high schools his firm is designing in that fast-growing state are responding to a wide range of educational and community needs. Among them: greater emphasis on language labs, a desire to foster team teaching, the need to make schools day and evening facilities for both students and

Continued on page 114

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las Gantenbein is a freelance writer
in Bellevue, Wa.

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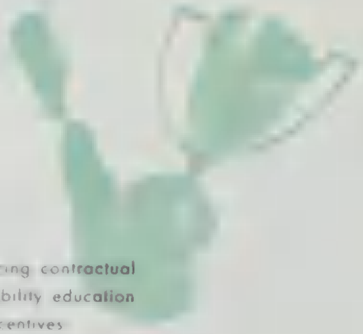

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ealth-Care rognosis: Change

Architects have a role in helping hospitals find new uses for the 200,000 in-patient beds and 42 million sq ft of surplus hospital space estimated for 2000.

Barbara A. Nadel

om California to the Carolinas, managed- e market forces have reshaped the alth-care arena. For-profit hospitals, insur- ce companies, and networks of managed- e providers are determining the size, loca- n, and scope of health-care facilities, based financing availability and market share, as ll as service demands. The only sure bet in current climate is the need for flexible ign to accommodate even more change.

cording to the American Hospital Associa- n, the number of hospital beds has been adily decreasing, from 923,000 in 1992 to ,000 in 1995, to an estimated 500,000 in 0. At this rate, based on a conservative mate of 100 sq ft per bed, hospitals might ceivably be left with over 42 million sq ft acant space by the turn of the century.

posed reductions in federal Medicaid/ licare programs will likely require her cutbacks, especially at urban institu- s now serving large uninsured ulations. They will consolidate, downsize, lose. Major medical centers and teaching pitals will receive less public money for ral research grants, medical education, astructure improvements, and in subsi- for elderly and indigent patients. The nt of the proposed reductions, and the lications of converting this funding to e block grants, isn't yet known since e changes are still being debated in Con- s.

ycling obsolete facilities

spital strategic plans now consist of 'we to stay in business. How can our ent facility meet that objective?' " rves Collin Beers, design director with ary Associates, in Philadelphia. Recy- unneeded space allows hospitals to in competitive by making the best use of ing infrastructure. In-patient areas are renovated for subacute care, cancer ment, and rehab therapy. Hospitals with rutilized in-patient operating rooms now to attract ambulatory surgery patients etter utilization and efficiency.

"Design professionals are shaping facilities to compete in managed-care settings by reducing operating costs through staffing efficiencies and shared multi-functional spaces," adds Joseph Sprague, senior vice president at health-care design giant HKS in Dallas. This may mean using an operating room for surgery or delivery, or scheduling exam rooms for different weekly clinics. A design that eliminates two full time employees, for example, might finance a second imaging machine.

"Installation and upgrades of new technology, such as cardiac cath labs and MRI equipment are continuing in many institutions after being deferred for several years," reports David Thistlewaite, principal of Thistlewaite Architectural Group in San Francisco. The challenge is retrofitting such small but costly high-tech projects into buildings that may have too-low ceilings or inadequate mechanical or electrical systems.

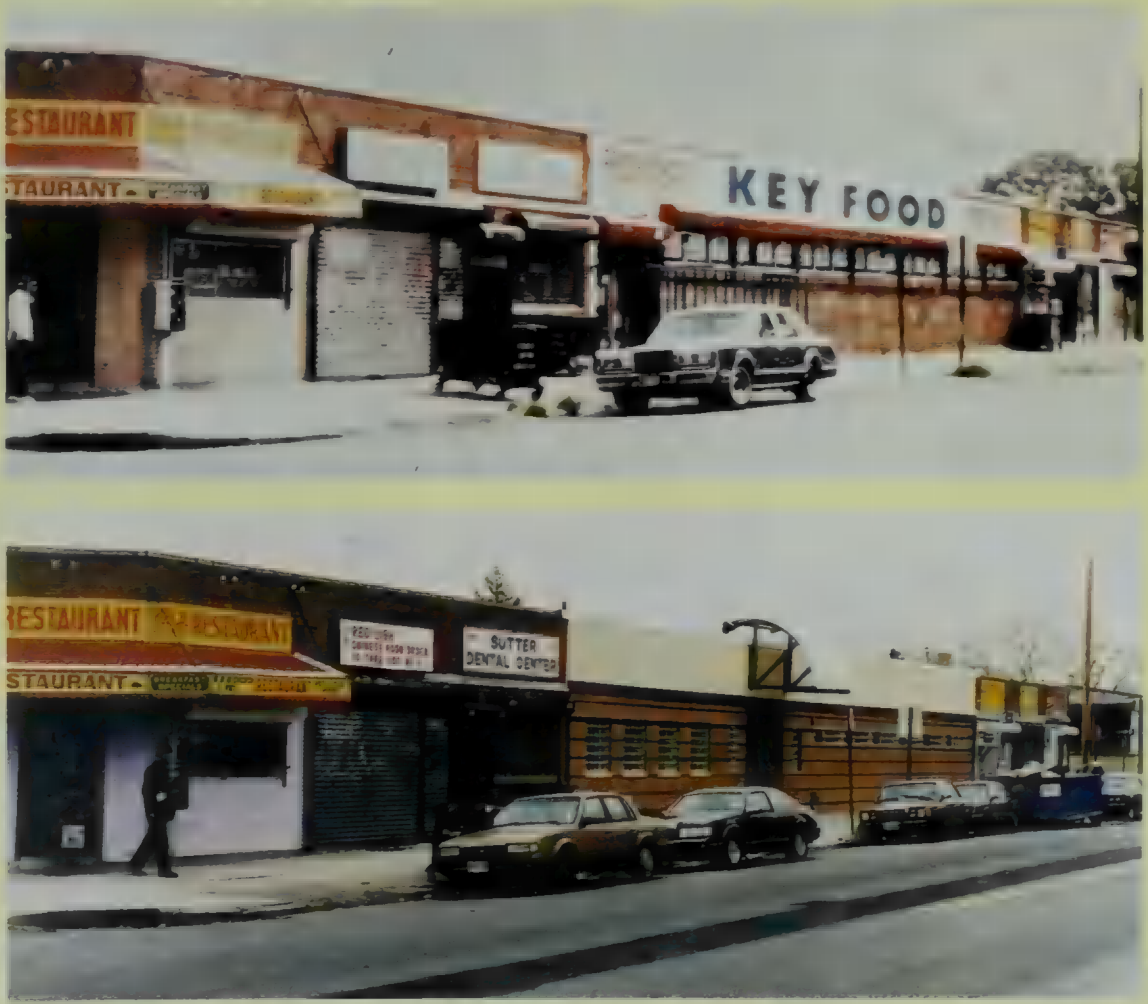
Hospitals without beds

Many hospitals have developed their own integrated managed-care networks. "Satellite diagnostic and treatment centers, or 'hospitals without beds', are on the rise across the country," says architect Ralph Hawkins of HKS. These offer urgent care and have birthing centers and 72-hour, short-stay beds. Hospitals own and operate them with house medical staff, creating a seamless in-patient/outpatient organization consistent with managed-care reimbursement policies.

Hospitals are also entering the long-term-care market by converting skilled-nursing

Continued on page 114

ara A. Nadel is principal of Barbara l Architect, in New York City, a health- orrectional-facilities specialist.



© Courtesy the architect

Going retail: *Designed by Architecture for Health Science and Commerce, The Sister Thea Bowman Family Health Center (bottom), a converted supermarket (top), brings a variety of ambulatory services to the street, extending the reach of its parent, Catholic Medical Center of Brooklyn and Queens (N.Y.), and serving women*

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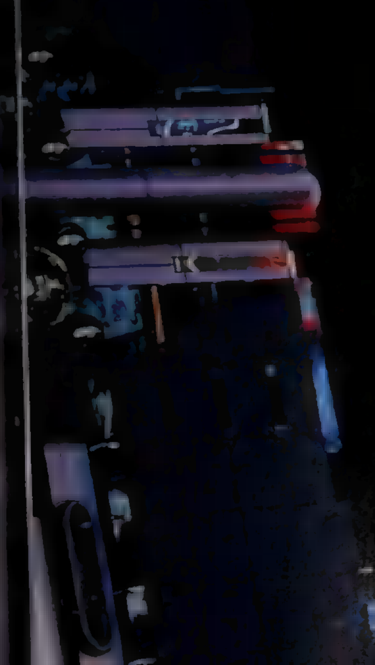

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Space, Time, and Cyber-Architecture

In this, RECORD's third awards program recognizing the use of computer modeling, rendering, and animation tools in the presentation of architectural concepts, entries fell into two

First Prize: "Logic Error"

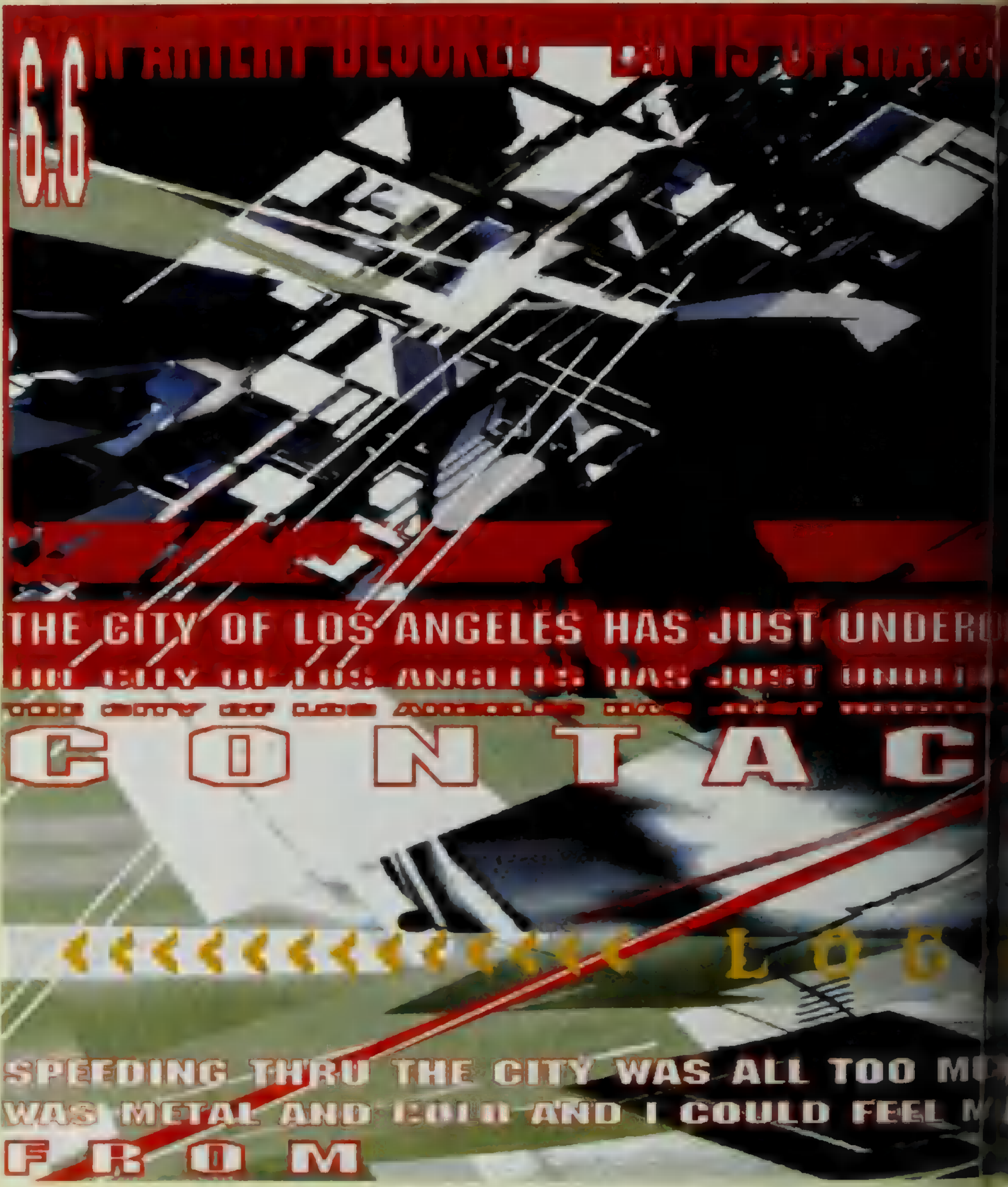
Delineator: Paul Q. Davis, Minneapolis

On the evidence of this entry, its assertion that "the world is in flux" is an understatement. The animation is not a project per se, but a series of expertly art-directed vignettes that take their cues from rock-music videos in content, editing, and imagery. Collaborating with Davis were Dav Arak Koenen, Daag R. McCallum, and Christopher Brain Mullen, all of Ellerbe Becket, Minneapolis, which provided the computer hardware and software supporting the team's explorations. They will receive the first prize, *Frank Lloyd Wright: Presentation Drawings*, a CD-ROM collection of nearly 5,000 drawings, offered by Luna Imaging, Venice, Calif.

"Ellerbe Becket has always supported a 'think tank' approach to the computer," explains Davis. "What we learn in the kind of exploring we do on our own time leaves us less inhibited when we pursue real projects with real clients." Offering little conventional narrative, the video intersperses occasional flying chunks of architecture with religious imagery, kitsch bits, and a possible crucifixion. Among bravura moments is a cityscape that stretches itself out like a ribbon, then wraps a cylinder that proves to be supported by a hub framed in the shape of a star. In another sequence, a spaceship-like object appears to spin downward into a cityscape, which flies into pieces as if hit by a cyclone. "Try not to focus on anything in particular," urges Davis. "The key is to unleash your own subconscious flow." In this case, that's good advice.

"Our current work is experimental," continues Davis. "We like to think of it as a moving collage of spontaneous visual emotions." The jury rewarded this exploratory approach. It rejected for an award another entry by the same team that could be regarded as a [illegible] video [illegible] Ellerbe [illegible] a lan- [illegible] animation [illegible].

[illegible] IBM RS6000, [illegible]
[illegible] 3M AES, Autodesk [illegible]
[illegible] Studio (video)
[illegible] logic_[illegible]



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WAS METAL AND COLD AND I COULD FEEL M
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mps. Many sought the most realistic depiction ssible of a building or space, literally using the mputer to inform more directly than drawings or en physical models could. This year's jury, however, preferred projects that used the computer to explore new ways of seeing. Following the pages showing the winners, architect Joseph Vance offers commentary on this year's record crop of entries.

IMENSIONAL DATA CAN BE TRACED X RO WIRE
PROJECT X
VE EARTHQUAKE - WE ARE TRYING TO MAINTAIN
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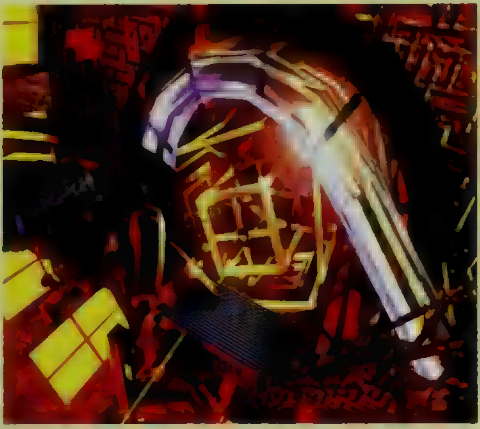
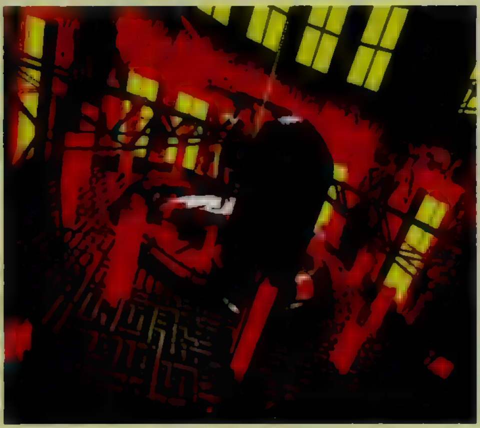
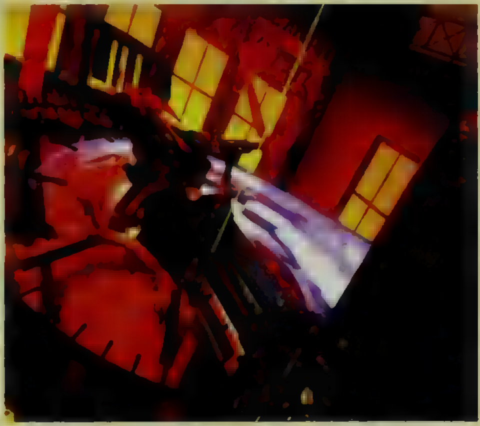
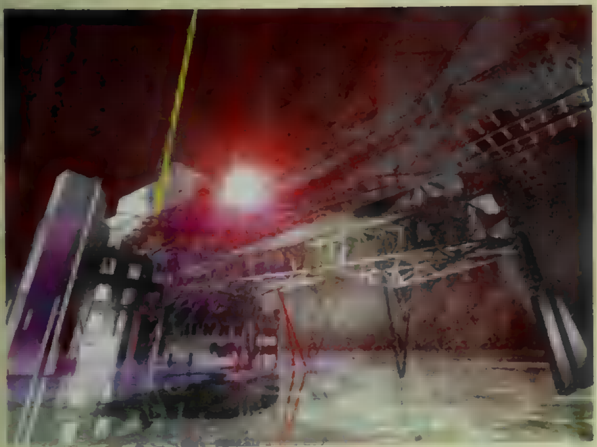
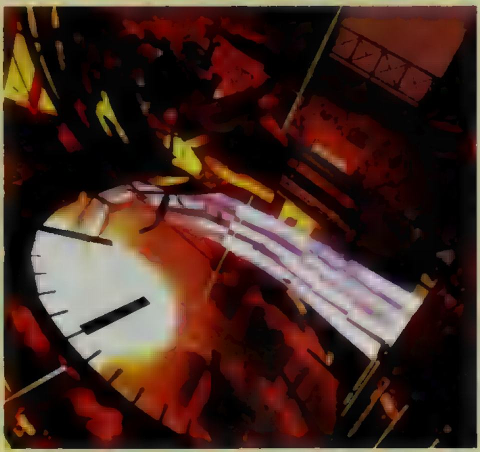
REALLY - I HAD TO SIT DOWN - EVERYTHING
S RUNNING - I HAD REMEMBERED THIS FEELING
MINNESOTA











> *"The computer permits much more complex shapes, which are reflected in architecture. 'Logic Error' is an image. This is a building."—Juror Tom Hanrahan*

Second Prize: "Firehouse 451"

Delineator: Drew Miller, Atlanta, Ga.

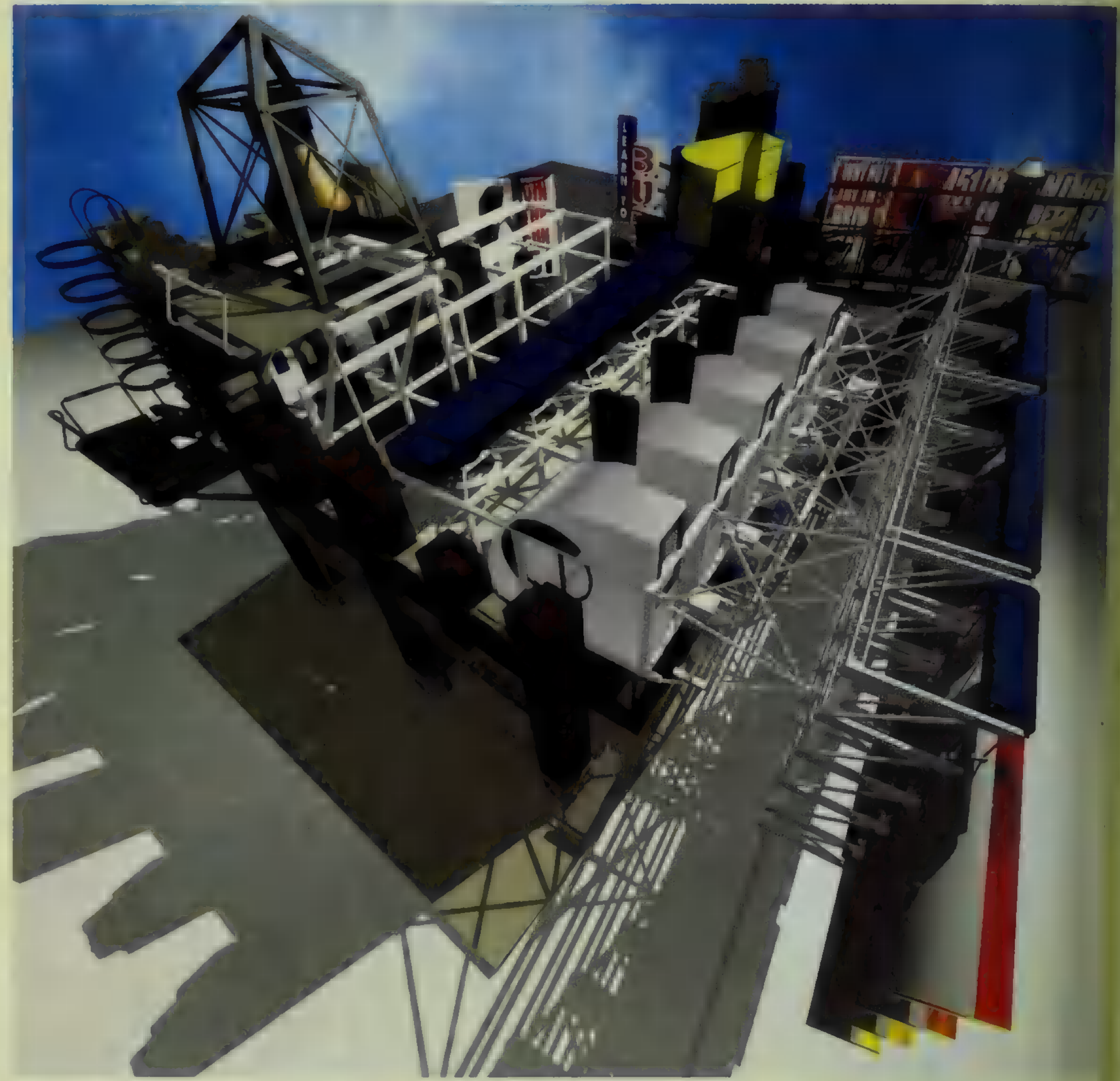
The entrant calls this suite of images "a metaphorical structure and space," derived from Ray Bradbury's science-fiction classic, *Fahrenheit 451*. Miller's prize is a copy of *Houses of Frank Lloyd Wright*, a CD-ROM offered by Luna Imaging, Inc.

Modeled from the historic Oglethorpe fire station in Savannah, Ga., Miller's vision is suited to Bradbury's nightmare firemen, whose duty it is to burn down (rather than save) the houses of those suspected of harboring literature, so that social "diversity and individuality" can be silenced. To the ruined walls, Miller has attached signs and electronic billboards (1), a furnace for literature burning (3), and a re-education center (including an inverted fire escape—2) for "the 451 youth corps."

Miller first developed the project while a student at the Savannah College of Art and Design under professors James Goodlett, Jr., and Deirdre Hardy. He completed it after graduating. Jurors were impressed by Miller's rendering skills. The shadows, for example, made the presentation unusually readable. Light was not just calculated, but manipulated for emphasis, augmented by selective use of realistic surface treatments.

This entry spurred a jury discussion as to how electronic imaging tools might be influencing what is produced. "The design of real buildings," explained Hanrahan, "reflects what the architect designs with—buildings that look like the foam-core models they were designed from, for example. Now the computer permits much more complex shapes, which are reflected in architecture. 'Logic Error' is an image. This is a building." J.S.R.

Computer: Pentium-type PC
Software: Cadkey DataCAD [illegible], Autodesk 3D Studio [illegible]0, Adobe Photoshop [illegible]
Output: Kodak CLS 8600, T[illegible] (Phaser [illegible] information printers)
Web Site: http://www.mind[illegible]fire451.htm



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econd Prize: he Power of Change in othic: Notre Dame athedral of Amiens"

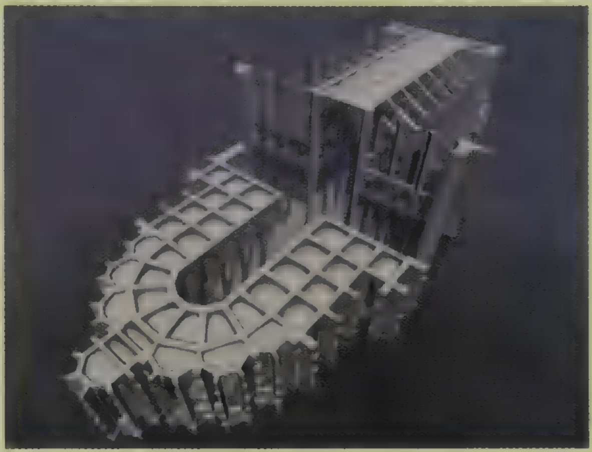
evelopment Team: Stephen Murray, ecutive director, Eden Muir, digital tech- logies director, Rory O'Neill, creative ector and animator, Maurice Luker, naging director.

e project uses computer models and ani- tion to engage both college and K-12 dents "in the active interpretation of a rk of art and its historical period," accord- to the Media Center for Art History at lumbia University, which produced the ry (and will receive the prize, *Houses of nk Lloyd Wright*, offered by Luna Imag- , Inc). Animation places the cathedral in village context (4), and describes the taphysical geometric ideas behind its ign. Construction and engineering princi- s are demonstrated by showing an ani- ed sequence of construction (1, 2, 3). A lapse" demonstrates the shortcomings of design, and the remedial work undertaken.

jury was impressed by the entry's sure of the technology. Elements were realisti- y rendered, and tools were used to ease rpretation. A mist surrounds the Cathe- , for example, creating a subtle but ctive sense of depth. "I have some con- that this was the work of many people, had many resources at their disposal," d juror Hanrahan. "Is it really showing it works or how it's built?" asked neister.

material came out of a study by Stephen ray, professor at Columbia University's rtment of Art History & Archeology. lents at Columbia's Graduate School of itecture modeled the cathedral at the ol's Digital Design Laboratory. Addition- nders included the National Endowment he Humanities and the Samuel H. Kress dation. J.S.R.

puter: Silicon Graphics
ware: Microsoft Softimage
ut: VHS tape
Page: http: //www.arch.columbia.edu/ /projects/amiens/.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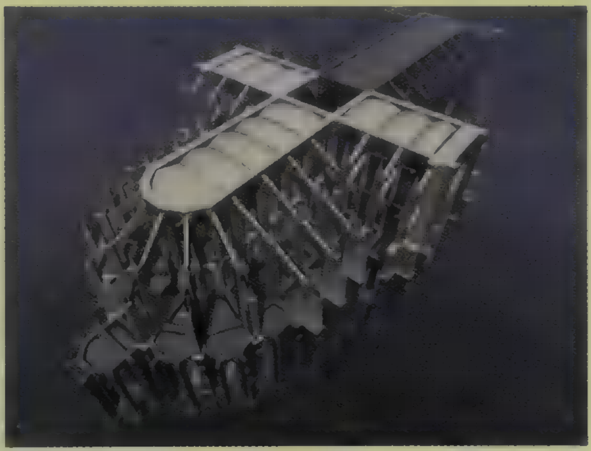
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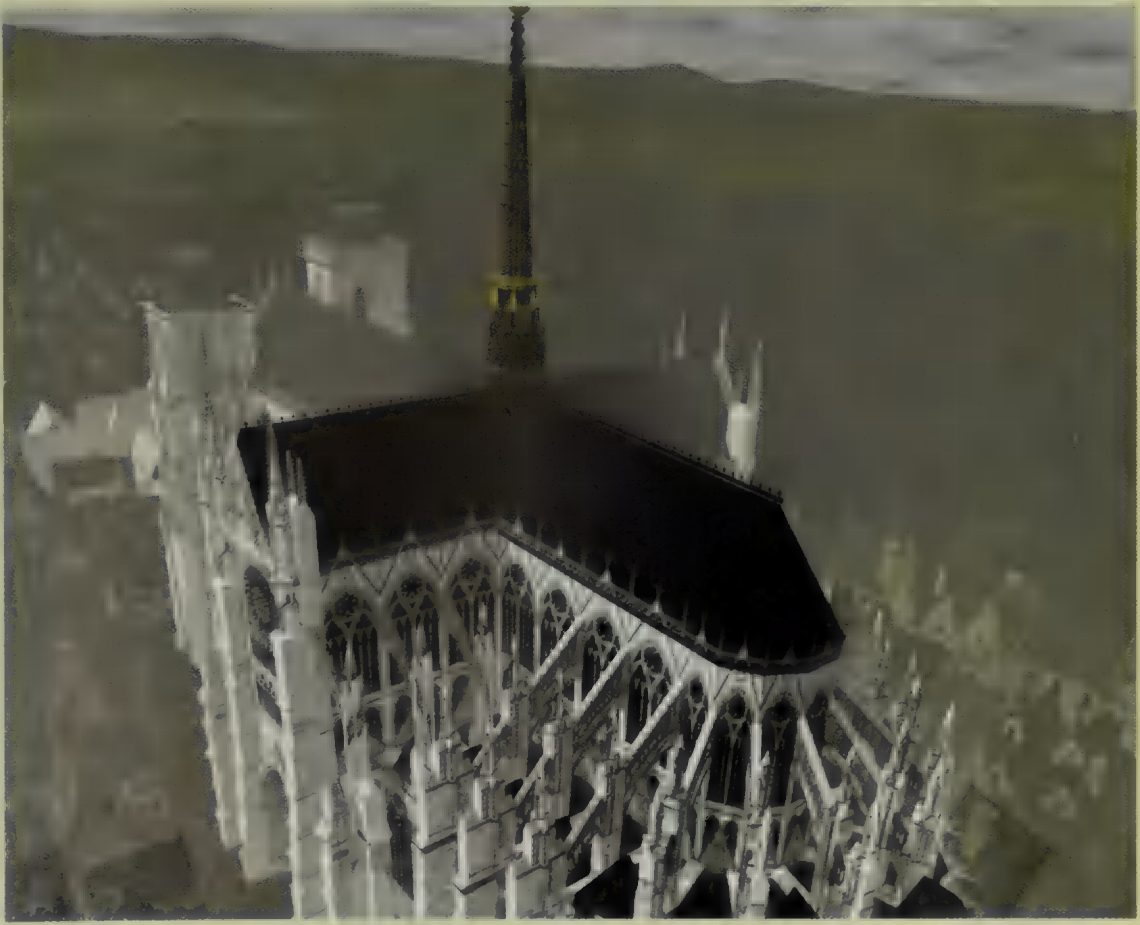

1

One entry was successful simply because it conveyed by the most realistic means possible the precise arrangement and feel of the rooms to users, who probably find reading plans difficult.

Honorable Mentions

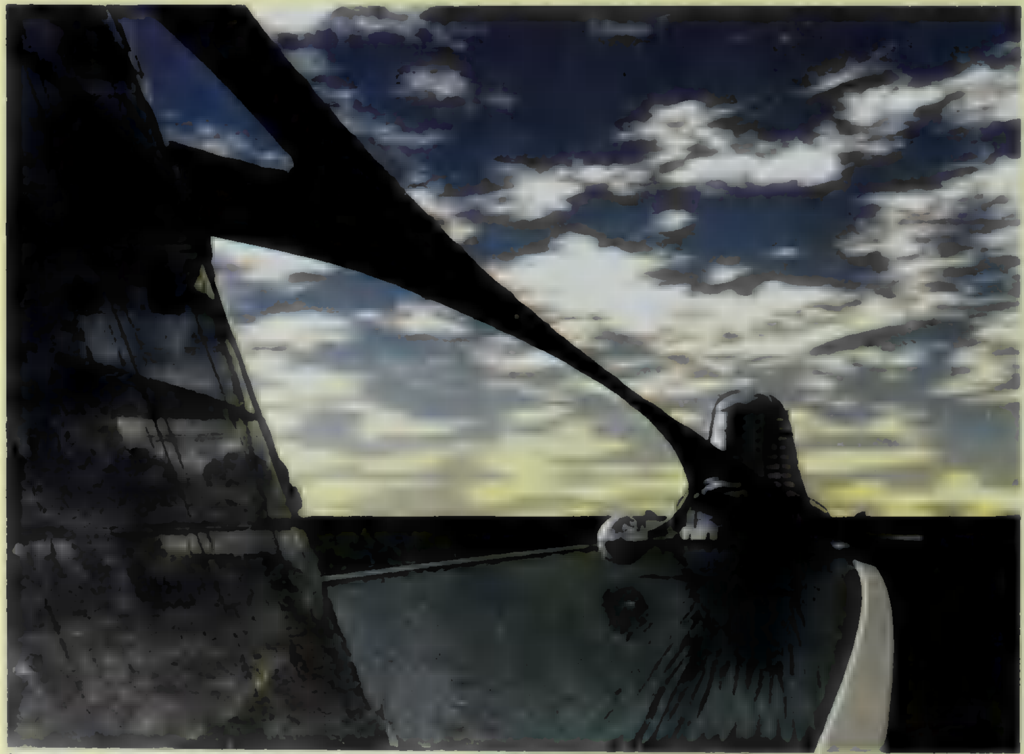
Project:
Taichung Civic Center, Taiwan
(Figure 1, below)
Delineators: Michels Bollinger, Inc., Washington, D.C., New York City: Doug Michels, Peter Bollinger, James Allegro, Mina Chow, George DeFalco, collaborators.
The project was delineated for entry in an international competition. Gaetano Pesce: "This one evokes a military power."
Computer: Silicon Graphics Workstation
Software: Alias wavefront
Output: Iris (prints)

Project: "Automorphic Architecture" (2)
Delineator: Bryant P. Yeh, Los Angeles
An exploratory project. Tom Hanrahan: "A poem, not a building."
Computer: four Pentium-type personal computers
Software: Autodesk AutoCAD 12, Adobe Photoshop
Output: Epson ink jet (printer)

Project: Palisade Center (3)
Delineator: Scott Folts, Syracuse, N.Y.
A gantry for media.
Computer: Tri-Star TriCAD P90
Software: Autodesk AutoCAD 13, Autodesk 3D Studio 4, Adobe Photoshop 3.0
Output: Epson Stylus (printer)

Project: Landa House (4)
Delineator: Mark R. Briggs, Morphosis, Santa Monica, Calif.
A rendering combining solid modeling with wire-frame. Gaetano Pesce: "A sketch, a section about process . . ." Tucker Viemeister "I don't know what it means."
Computer: Pentium-type PC, Apple Power Macintosh 8100
Software: Forum 2, Autodesk 3D Studio
Output: Epson Color Stylus (printer)

Project: "The Monastery of St. Casimir" (5)
Delineator: Darius Kuzmickas, University Utah, Park City.
A rendered computer model with an animated walk-through.
Computer: Pentium-type PC
Software: Bentley Systems' Microstation 5.0, Adobe Premier 4.0, Adobe Photoshop 2.5



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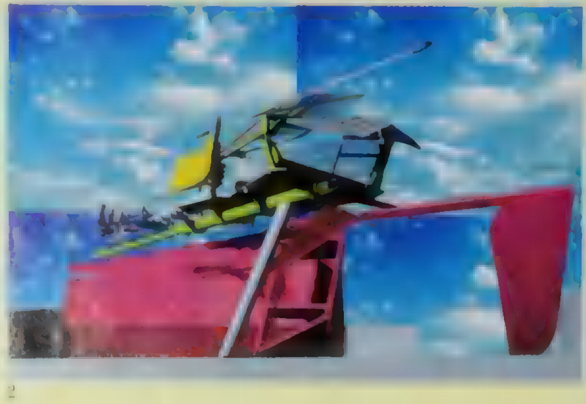

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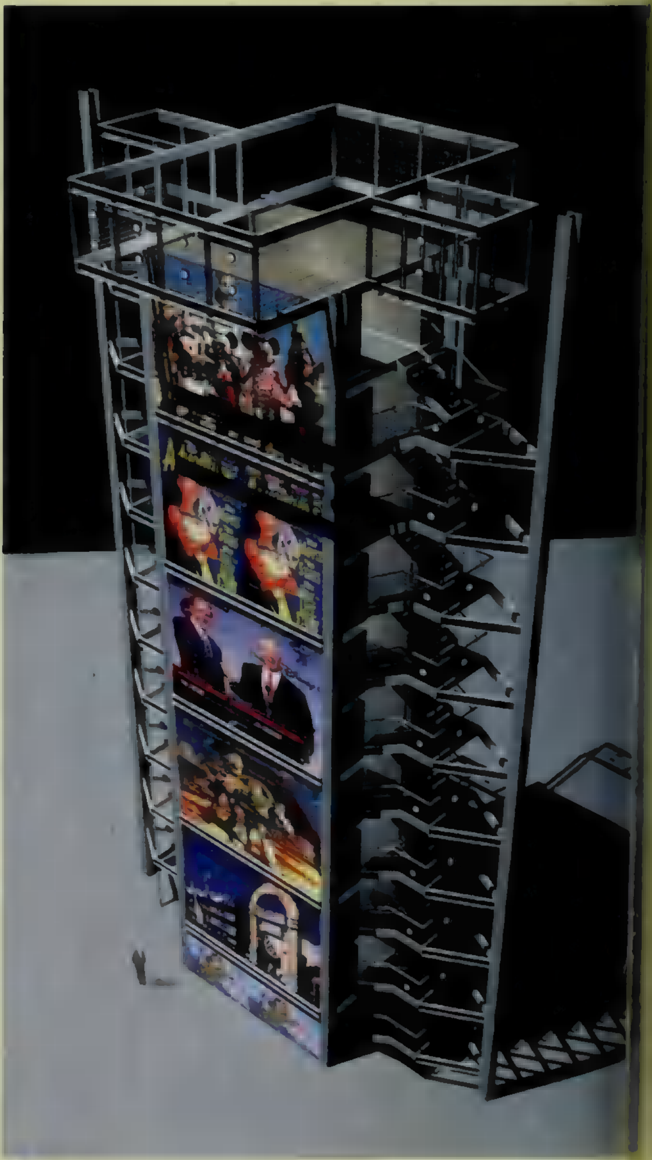
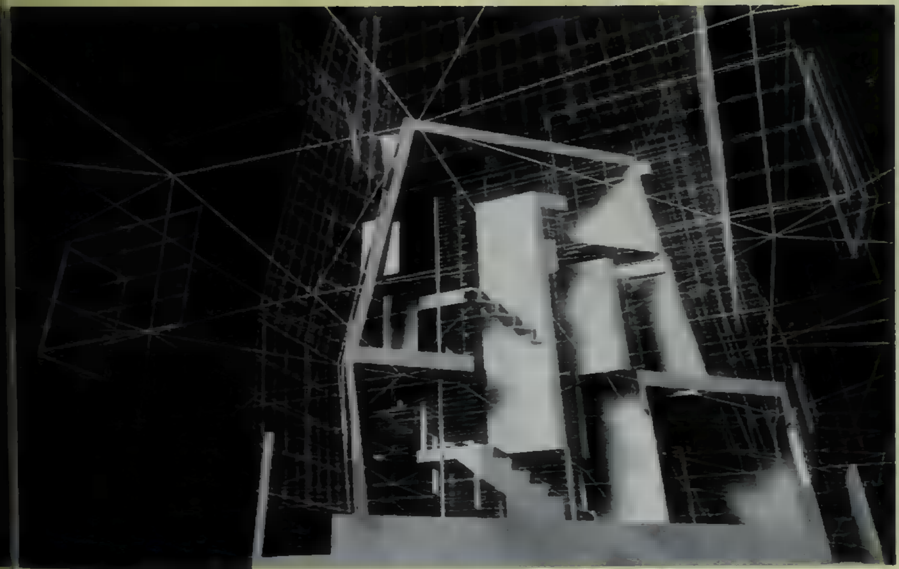
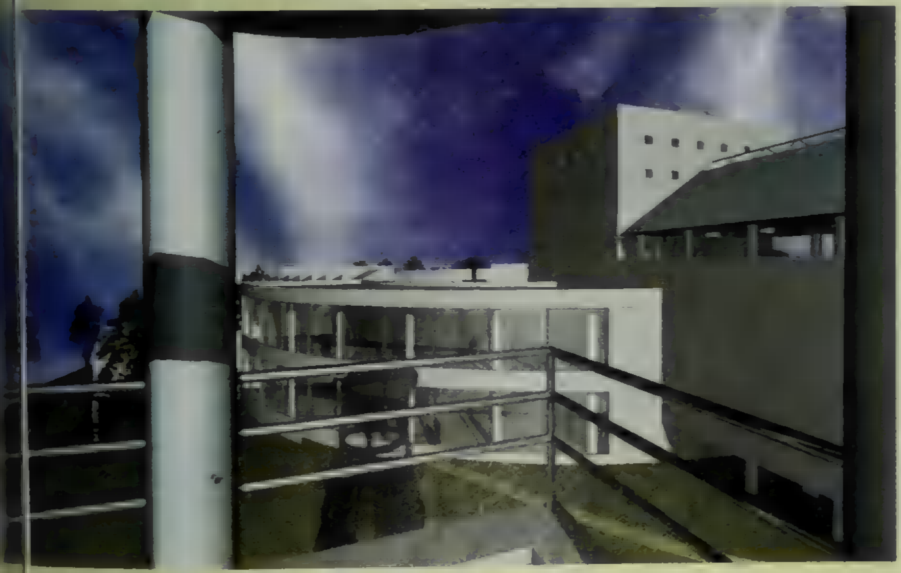


3

tput: videotape and ink-jet prints

oject: New Worship Center, Old River
ptist Church (not shown)
lineators: David Ren Henderson, Zero
avity, Inc., The Woodlands. Tex. Robert
ger, Paul Lyle, Geoffe Greene, collaborators.
animated and rendered model that
wed a church group not only what their
ject would look like, but how it would be
lt. Tucker Viemeister: "I don't like the
ign too much, but it communicates how
done."
mputer: Silicon Graphics Indigo 2
reme
tware: Alias Wavefront
tput: Sony BetaCam SP (video)





The Irreplaceable Artistic Hand

Awards commentary by Joseph Vance

The number of entries in the third Computer Delineation Award program was up significantly in 1996—356, compared to about 90 last year. The size of the response suggests that nine years after the personal computer landed on architects' desks, designers are becoming more comfortable with computer-based modeling and rendering, and these tools are becoming as conventional as cardboard models or ink-line renderings once were.

The jury this year consisted of Gaetano Pesce, a New York City-based architect and designer; Tom Hanrahan, partner in Hanrahan & Meyers, a New York City architect; and Tucker Viemeister, vice president product design at industrial-design firm Smartdesign, Inc., also of New York City.

Matching project and rendering technique

The winners shown on these pages depict a wide range of successfully implemented computer-based rendering techniques. That said, there were also many examples where technical mastery fell short. It looked like some entrants indiscriminately used every feature offered by the modeling or rendering application. As a result, surfaces appeared wrapped in faux wood grain or marble and lit from unnatural angles with surfaces reflecting light in ways not seen in nature.

As Tucker Viemeister noted, some entries seemed driven by what the computer can do, as opposed to what method of presentation was most appropriate for the project. As a general rule, the more successful images were those that either mastered enough software features to create convincingly realistic images, like the Taichung Civic Center (opposite), or used the features sparingly for a simpler graphic effect, like the Landa House entry by Morphosis (left). An exception to this was the second-place winner by Drew Miller (previous pages). His interpretation of the firehouse from Ray Bradbury's *Fahrenheit 451* is not only unmistakably computer-generated, it embraces the technology to convey its ideas. The rendering is detailed, but the surfaces aren't textured photo-realistically. The colors are intentionally vibrant and the model is lit for dramatic rather than realistic effect.

Jurors' "intense" reaction to animations

Just as with traditional media, a successful computer rendering is delineated—requiring the hand of an artist and the eye of a photographer. The shortcomings of entrants lacking these skills was most pronounced in the animation entries. Video presentations, just like television and movies, draw more visceral reactions. Jurors certainly reacted more intensely, excited by some entries and repelled by others. An entry for a

Continued on page 112

Joseph Vance heads his own New York City architecture firm and is chairman of New York/AIA's Macintosh Users Group.

Unlike the Spanish tile, the Palladian windows and the hand-carved doors, the new HP DesignJets have come in under budget.

Circle 68 on information card

For once, the one yo
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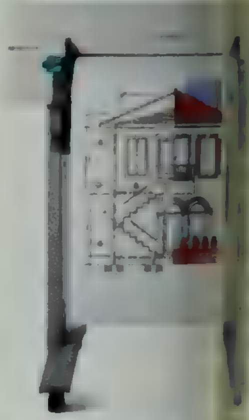

HP DesignJet 330

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1996 Hewlett-Packard Company PE12597

oming: Drawings Vith Data Overload

This month's reviews of modeling and GIS software underline the emerging need for more data standards.

Steven S. Ross

time to rewrite local codes again. There's rowing consensus that drawings of the ure are going to contain lots of data—far ond what even the biggest, nastiest pro- s require now. There's also a growing sensus that product manufacturers—the s who supply windows, doors, sewer fit- gs, and street lamps—are going to do st of the codifying of such data.

vendors must remain competitive in the ional construction-products market. But ny large cities and other jurisdictions do follow national codes. Some follow most e rules, but word them in different ways. e have their own rules. Some arrange rules differently, even when the para- ph-by-paragraph wording closely allels national codes such as BOCA.

s, a Class 3A widget in one jurisdiction have an exact or close counterpart on A STD-43C. Or, those Class 3A widgets have no exact counterpart at all, else- re; other jurisdictions may have layered e Class 3A rules as parts of five or six r code sections.

thinking among major jurisdictions many codes of their own—New York and San Francisco come immediately ind—has been to start developing trans- n systems. Without changing the rlying data of their codes databases (or ging the data only in minor ways), the has been to create more user-friendly t ends," interfaces that allow architects builders to find information.

approach seems cost-effective for exist- echnology. But by the time these user faces are finished in many jurisdic- , the technical needs will be different. I y about the added costs of designing, ructing, and maintaining buildings in York City a decade or two from now, se so many vendor-supplied "intelli- details" will be only marginally useful, s New York codes are brought more into vith national codes.

's more, the babble represents an oppor- y lost, for practices to supply more rables to clients in the form of data that will help maintain a building and handle modifications 20 or more years after the keys are handed over to clients.

Building owners have either been complacent, or have looked upon the situation as an opportunity to weaken codes while realigning them. For the conversion to proceed in a timely fashion, however, it must be taken on as a separate issue, apart from code changes—no matter how logical those code changes may appear.

This is not a time for finger-pointing, either. Many of these "non-standard standards" got written into codes in the first place because the cities that did so were pioneers. New York, for instance, was perhaps the first large jurisdiction to approve acrylic sheets for lighting.—SSR

Form-Z RenderZone 2.8

Equipment required: Macintosh or Windows-capable computer. Power Mac or Windows 95 with at least 16MB of RAM strongly recommended; 32MB is even better (the extra 16MB will set you back about $400 at current prices). Versions are available for Macintosh 68040 CPUs, Power Mac, Windows 3.1, 95, or NT.

Vendor: autodessys Inc., 2011 Riverside Dr., Columbus, OH 43221; 614/488-8838, fax 614/488-0848; formz.mktg@applelink.apple.com; http://www.formz.com.

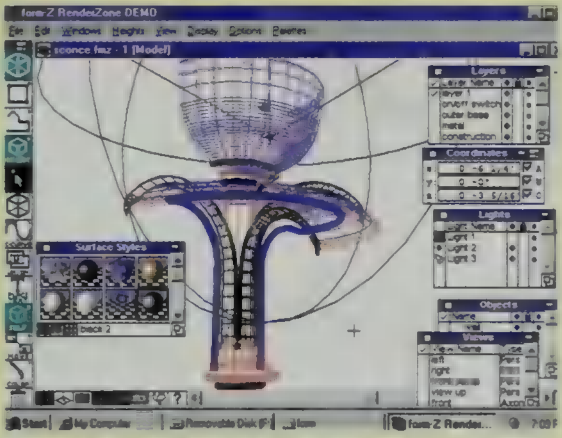
Cost: form-Z, $1,495; RenderZone, $1,995. Windows promotional pricing until June 30—$999 for form-Z; $1,399 for RenderZone.

This popular package for creating detailed 3D models just got a lot better. The folks at autodessys have been steadily adding features to form-Z every few months for many years. Last month brought bigger news. First, the basic modeling package, form-Z itself, has been enhanced with photorealistic rendering: the combo is being sold under a new name, RenderZone. But form-Z without this feature is still being sold as, well, form-Z. The second big piece of news: form-Z and RenderZone are now available for Windows computers as well as for the Mac. All these permutations carry the "version 2.8" tag.

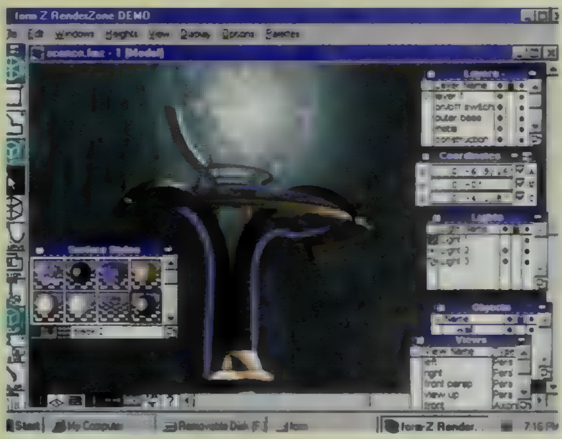
We've done some rough speed tests with RenderZone, comparing Windows and Mac versions. Right now, we find Power Macs faster than Pentiums of equivalent price and memory. Older 68040-CPU Macs are slowest of all (as much because of memory management as CPU speed). We also prefer the Macs for rendering because the display usually offers truer colors.

It is clear that Windows is catching up, however. And because most high-end CAD packages are sold mainly for Windows, the ease of keeping everything on one platform may outweigh the Mac's benefits.

Form-Z has long been class of the field among Macintosh modeling packages. It offers solid and surface modeling, along with some drafting and some rendering functionality. But 3D modeling is where it really shines. It handles



Sconce rendered in RenderZone [illegible] frame. Note the variety of surface [illegible] available.



Sconce shows [illegible] ted internal light [illegible] reflected light.

boolean operations (adding and subtracting solid or planar shapes) easily and intuitively. It also allows you to easily define meshes, curved splines, helical objects, and special effects such as NURBS, 3D text, object rounding, and deformations.

One of the neatest new features is a resizing dialog that makes matching underlying bitmaps and other objects a breeze. The query tool now handles 2D objects as well, again helping to integrate new objects into a model.

Form-Z also has had a good record of keeping its file-format translators rock-solid and up-to-date. Version 2.8 for Windows adds 3DS, Windows BMP, and Windows Metafile. But users have had to render form-Z models in other packages such as 3D Studio or Ray Dreams to get really spectacular effects. The RenderZone version makes that unnecessary.

You can download demos of both RenderZone versions (Mac and Windows) along with mini-manuals from the firm's web site, http://www.formz.com. The files are large (several megabytes each) but the wait will be worth it.

Manuals: Excellent; downloaded demo versions have mini-manuals that print out in Acrobat format (you can download an Acrobat reader/printer free from the autodessys site).
Ease of use: The interface is first-rate, but not for everything or every working style. If you like to scoop out shallow sections from solids by "sculpting" (without creating a shape and then doing a boolean subtract), and you do a lot of it, the interface will be a bit cumbersome. On the other hand, speed counts in high-end modeling and this package is fast—even faster than the last version we tested thoroughly, 2.3. We hate the copy-protection dongles.
Error-trapping: Good. At times you run out of [illegible] space to hold rendered images; [illegible] panning then forces a re-render, [illegible]e-consuming. On the other hand, [illegible] save partially rendered [illegible] [illegible]rmous time-saver.
[illegible] on Reader Service Card

ArcView 2.1 for Windows

Equipment required: Computer capable of running Windows 3.1 or 3.11 (8MB minimum), or Windows NT (12MB minimum). Windows NT computer must use Intel CPU. Vendor warns that is has not been tested on Windows 95. Fast Pentium strongly recommended. Macintosh and Unix versions available.

Vendor: ESRI (Environmental Systems Research Institute, Inc.), 380 New York St., Redlands, CA 92373-8100, 800/447-9778 (GIS-XPRT), 909/793-2853, fax 909/793-5953, http://www.esri.com.

Cost: $995 each with 90 days telephone support; $295 a year annual maintenance, free upgrade to 3.0 late this summer.

With more and more offices getting into the planning business, or at least spending more time with planners, you may have to master the world of geographical information systems (GIS). If you are going to use them a great deal, you'll probably want to consider a true workstation version, perhaps running on a Sun SPARC computer. But for light-duty use, a Windows-based package may be acceptable.

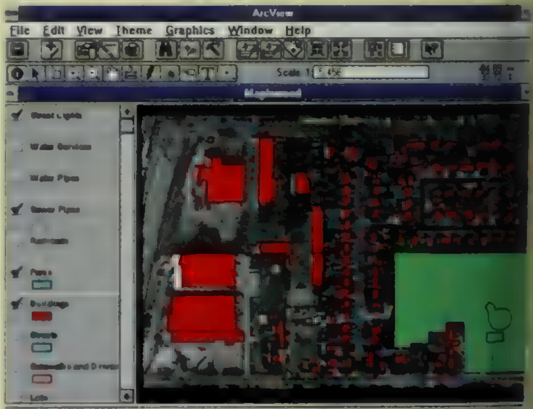
Why the need for power? GIS projects are extremely data-heavy, even more so than most architectural projects, even large ones. CAD vendors themselves have been working on solutions. Autodesk pushed ArcCAD from ESRI, an add-on for AutoCAD. Autodesk is about to release its own add-on now. So is Bentley Systems. We'll be reporting on those in some detail in future issues.

For really huge GIS tasks, Autodesk is about to release its ADE (AutoCAD Data Extension) version 2.0. We've been playing with the beta version, and we are impressed. For very basic tasks (population profiles, for example) MapInfo, BusinessMap, and similar products are available. MapInfo is looking more and more like medium-level GIS, too.

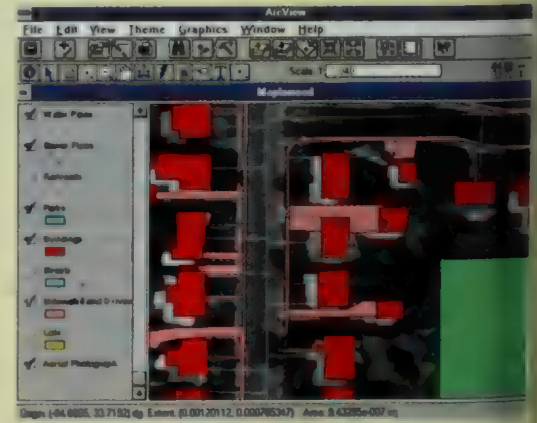
For medium-duty tasks such as subdevelopment planning, or for heavy-duty, city-wide tasks where you don't need to include every scrap of data (and thus create a monstrous data pile), ArcView offers an excellent solution. It runs independently of CAD software but can exchange data. The firm also sells lots of geographical data at reasonable prices.

There's also a developer's environment, called Avenue for customizing ArcView to your needs.

Manuals: Concise, to the point, full-color paperbacks. ESRI also has a large selection of texts available; you can even order them from the firm's web site, http://www.esri.com.
Ease of use: Great for a GIS product. The project viewer looks very much like the viewer in common database products such as Access or Paradox. It is easy to superimpose data on aerial photos—even satellite photos.
Error-trapping: Excellent. It seems near-impossible to destroy data.
151 *on Reader Service Card*



Buildings, some street-light utilities, and parkland superimposed onto aerial photo



Area of first view, but with sewer pipes an sidewalks added.

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Fire Retardants For Exposed Structure

154. Decorative and fire-rated

A/D Firefilm is a paint-like intumescent coating that retards thermal transmission to keep structural steel below its failure temperature for a rated time. Available in ratings of up to two hours according to tests by Underwriters Laboratories of Canada (CAN/ULC-S101; ASTM E-119). The white, water-based finish is sprayed on as a single coating up to 0.12-in. thick over a compatible red-oxide primer, and top-coated with a low-VOC decorative paint. Chamberlain Architects used Firefilm on structural metal at The Canadian Warplane Museum (right) so that the hangar framing would not have to be concealed by a rated finished ceiling. The installed film is impact- and abrasion-resistant. 800/263-4087 (U.S.); 416/292-2361; fax 416/298-5887. A/D Fire Protection Systems, Inc., Scarborough, Ont.

© Lenscape photo

155. Thin, esthetic fire resistance

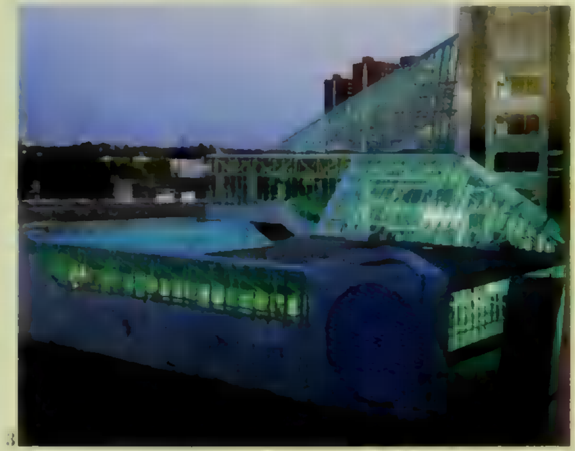
Albi makes several types of intumescent coatings. These swell (intumesce) at elevated temperature to form an inches-thick insulating-foam barrier that maintains the beam or other structural element at below-failure temperatures for a minimum time. The product line includes solvent-based mastics, suitable for exterior use and capable of multiple-hour ratings. For interior use, the firm's water-based thin-film coating, AlbiClad TF (1), is said to be able to capture sharp details—such as cast-iron bolt heads (4)—without blurring the outlines of architectural elements as thicker coatings might. Decorative topcoating will not compromise fire-retarding performance.

A new, non-intumescent fireproofing, DriClad board (2) requires no water or mixing. A mineral product comprising volcanic rock and resins, it can be precut for on-the-job-installation. Boards are mechanically fastened with the AlbiScrew system after blade-cutting.

Among the applications for AlbiClad TF intumescent is a supporting atrium structure (3) used in the Alewife TransitStation in Boston, and a retrofitted series of steel columns (4) at the Reading Terminal Market, in Philadelphia. Both were spray-applied directly to the structural steel. 860/828-0571; fax 860/828-[illegible]. Albi Manufacturing, Div. of StanChem, [illegible] Berlin, Conn.

1

2



3

4

© Alex Beatty photo

,ess obtrusive paint-like intumescent coatings, relatively new high-
lensity cementitious coatings, and fire-proofing boards permit new
lesign freedom while protecting structural steel.

56. High-density cement fireproofing

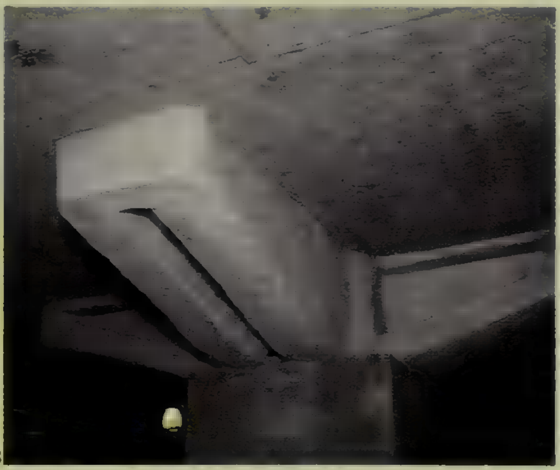
. high-bond-strength Portland cement fire-
roofing introduced in the early 1990s to
ffer the architect finish options not previous-
/ available in a cementitious product, Grace's
Ionokote Type Z-146 has recently been
eformulated. The improved chemistry
llows a thinner application to achieve the
ame hourly ratings as the original, thicker
epth. The material comes premeasured,
eeding only to be mixed with water in a
addle-type plaster mixer at the job-site. Z-
46 is sprayed onto clean interior or exterior structural steel in thicknesses appropriate for ratings of up to four hours. It can be finished with a trowel to create a smooth, decorative finish (1).

Type Z-146 can be integrally colored in the mix, eliminating painting, or standard paints can be applied to smooth surfaces. The beams (2) are clad in Monokote fireproofing coated with epoxy, in order to meet the dust-free requirements of a computer-chip assembly facility. The compound is said to have sufficient build and impact-resistance to allow space-saving definition of beams and other structural elements in heavy-use applications such as in parking garages (3).

Grace has also improved the installation characteristics of its medium-density Type Z-106 product, for use in areas such as elevator shafts with no direct exposure to the environment. 617/876-1400. Grace Construction Products, Cambridge, Mass.

2

3



57. Thin, intumescent mastic

ire Research Laboratories makes a line of
'e protective coatings, including intumes-
ent and cementitious types, for a wide range
' Class A and UL requirements. Its No. 44
oer-reinforced mastic, formulated for appli-
ation with a heavy-duty sprayer or trowel,
in conform to the contours of beams, allow-
g such details to contribute to the
chitecture of a space (right).

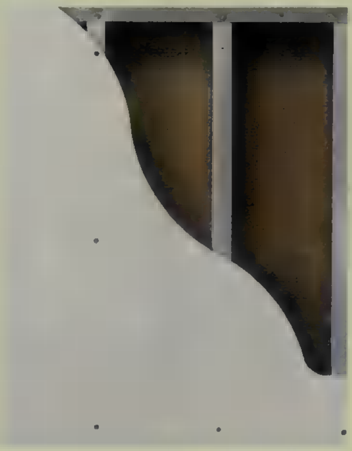
ie coating dries to a hard, flexible finish
at is said to have excellent abrasion resistance, and to be able to withstand hard use and occasional dings. No. 44 mastic meets VOC regulations both in application and after cure. The standard color is white, as shown; decorative top coating is permitted. It is approved for use on both structural steel and structural wood shapes, as well as on aluminum and plastic substrates in some applications. 800/877-3473. Fire Research Laboratories, Albuquerque, N.M.

58. Fire- and assault-resistant

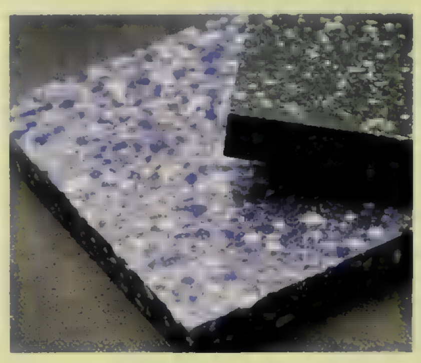
new 5/8-in. Fire-Shield wallboard combines
)eled, one- and two-hour fire resistance
th several levels of impact and penetration
sistance. The Hi-Impact board (right) is a
mposite of type X gypsum core encased in
avy, natural-finish paper on the exposed
le, and a liner paper on the back. Lexan
n is bonded to the back in one of three
cknesses as appropriate to the require-
ents of mental-health hospitals,
rrectional facilities, housing, and schools.
ien installed as part of an approved assembly, boards can withstand impact penetration from gurneys, ballpoints, or hammers at levels of up to 1,450 foot-pounds.

Compared with other impact-abuse wall systems, Hi-Impact wallboard is said to be easily cut-to-fit. A tapered edge allows for joint reinforcement. 800/628-4662. National Gypsum Co., Charlotte, N.C.

See Product Literature, page 116, for additional sources of fireproofing materials.



Product Briefs/Contract Finishes



159. Aggregate look

Introduced last year, Magna-pattern Corian has a larger, granite-like particulate blended in a realistic multicolor matrix. New this year: Mediterranean (blue tones with white particles) and Rain Forest (dark green with earth-tone specks). All Corian is Class A per ASTM E-84. Colors are integral; in-use scratches may be removed by light sanding. 800/426-7426. DuPont Co., Wilmington, Del.

160. Lines and prints

Two new vinyl wallcoverings by Patty Madden are intended to coordinate in commercial interiors. Both 54-in. wide, Netting has lines and shadows in a woven look; Netting Damask adds a soft overprint. A sample book is offered without charge to architects and designers and covers all these Vinyl Resource patterns. 516/582-4300. J.M. Lynne Co., Inc., Smithtown, N.Y.

161. Geometric broadloom

From the new Women @ Work line of sculpted-pattern carpet (so named to commemorate female textile workers, from bobbin tenders to fabric designers), Spool Rack is a 40-ounce contract construction of Ultron nylon with an emphatic diamond-shape design. Sample program: 800/221-3684. Prince Street Technologies Ltd., Cartersville, Ga.

162. Raised-line pattern

"Inspired by urban intersections, avenues, and streets," Metropolitan broadloom has a two-color grid design that allows for a wide range of accent shades. Part of the Cityscapes contract line made of Antron Lumena fiber, the carpet incorporates integral stain- and microbe-resistance. 706/882-1891. Interface Flooring Systems, Inc., LaGrange, Ga.

163. Tough cottons

Made by mills in the U.S. and Belgium, Cultural Ingredients fabrics incorporate various weaving techniques to achieve heavy-use abrasion resistance in all-cotton and cotton-blend materials for contract applications. Styled by Jane Eschbach in neutral colors, upholsteries come in three patterns, each in five colors. Swatches: 800/444-8812. Geiger Brickel, Atlanta.

164. Bright-color VCT

A popular and economical floor for school, retail, and healthcare applications, Standard Excelon Imperial Texture now comes in 50 colors, including the eight new "spice" tones pictured. Complete sample program for architects and designers. 800/292 6308. Armstrong Commercial Floors Lancaster, Pa.

165. Nylon upholsteries

Made of solution-dyed Zeftron, the Berkshire fabric line consists of tapestries and stripes available in 23 color options, constructed to meet th most severe abrasion- and color-fastness tests. Priced for contract applications at about $35/yd. Sample swatches: 212/995-0115. Maharam, New York City.

166. Extra durable

A new plastic-laminate option, Armored Protection Plus is said to provide greater visual clarity and pattern fidelity, as well as insuring longer as-new service life, even in applications such as children's furnishings. Woodgrains, in particular, have a brighter, more authentic appearance. Sample chips offered. 410/551-5000. International Paper–Nevamar Div., Odenton, Md.

167. Laminate flooring

Made in tongue-and-groove planks for "floating" installation, new flooring is said to combine the easy-to-clean and decorative characteristic of the high-pressure laminate used for countertops with a traffic surfa 10 times more durable. Designed f kitchens and other home areas; flo comes in 15 wood grains and can b laid over existing flooring. 800/435-9109. Wilsonart, Temple, Tex.

168. Wallcovering source

Satinesque Class A wallcoverings, offered in a 54-in. width, are now organized into a two-volume Core Binder. This includes five groupings—faux finishes, wovens, Brus Strokes, fabric looks, and classical motifs—30 patterns in 963 colorw Binder is a convenient size with la swatches. 800/895-9908. Columbus Coated Fabrics, Div. Borden, Inc., Columbus, Ohio. ■

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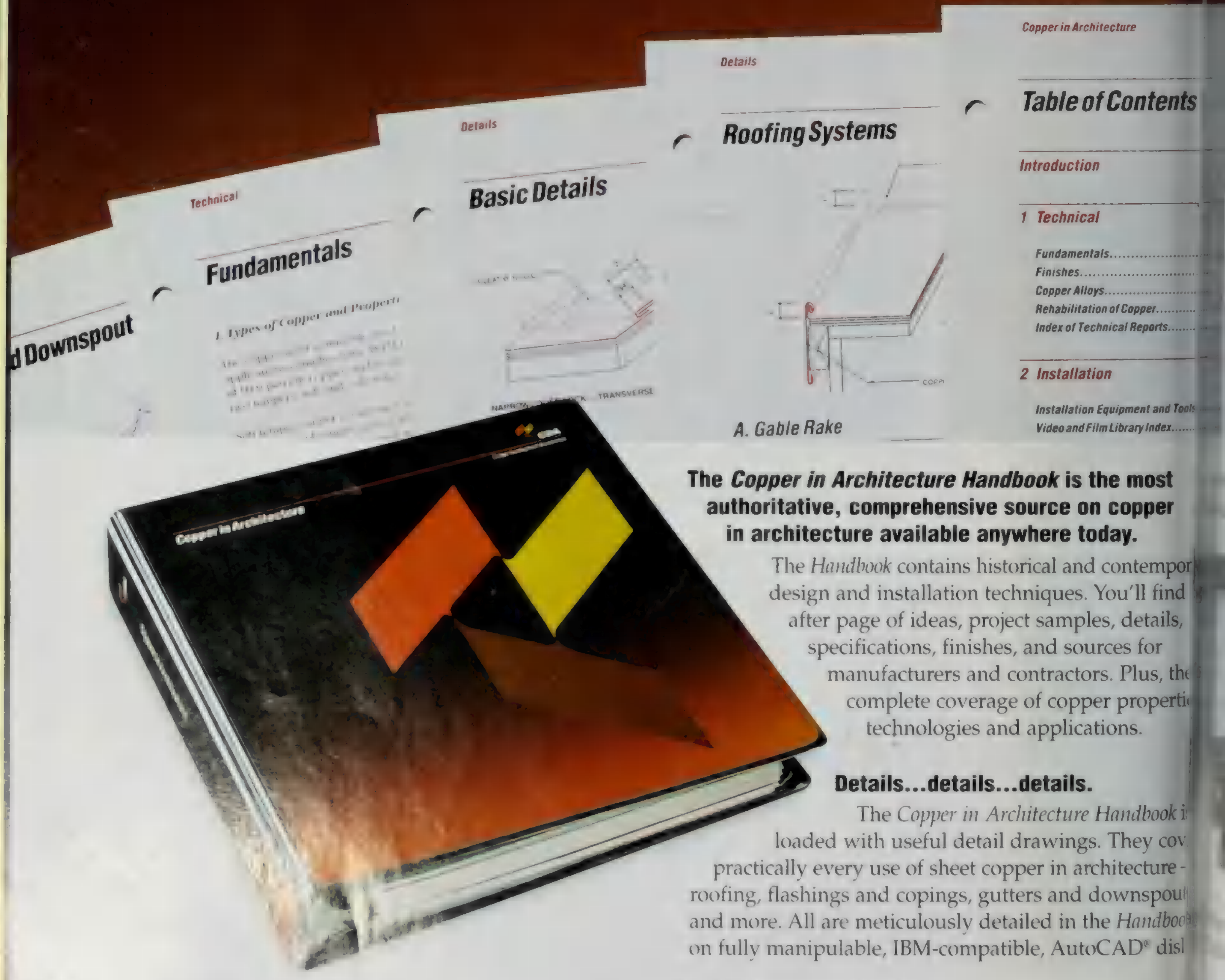

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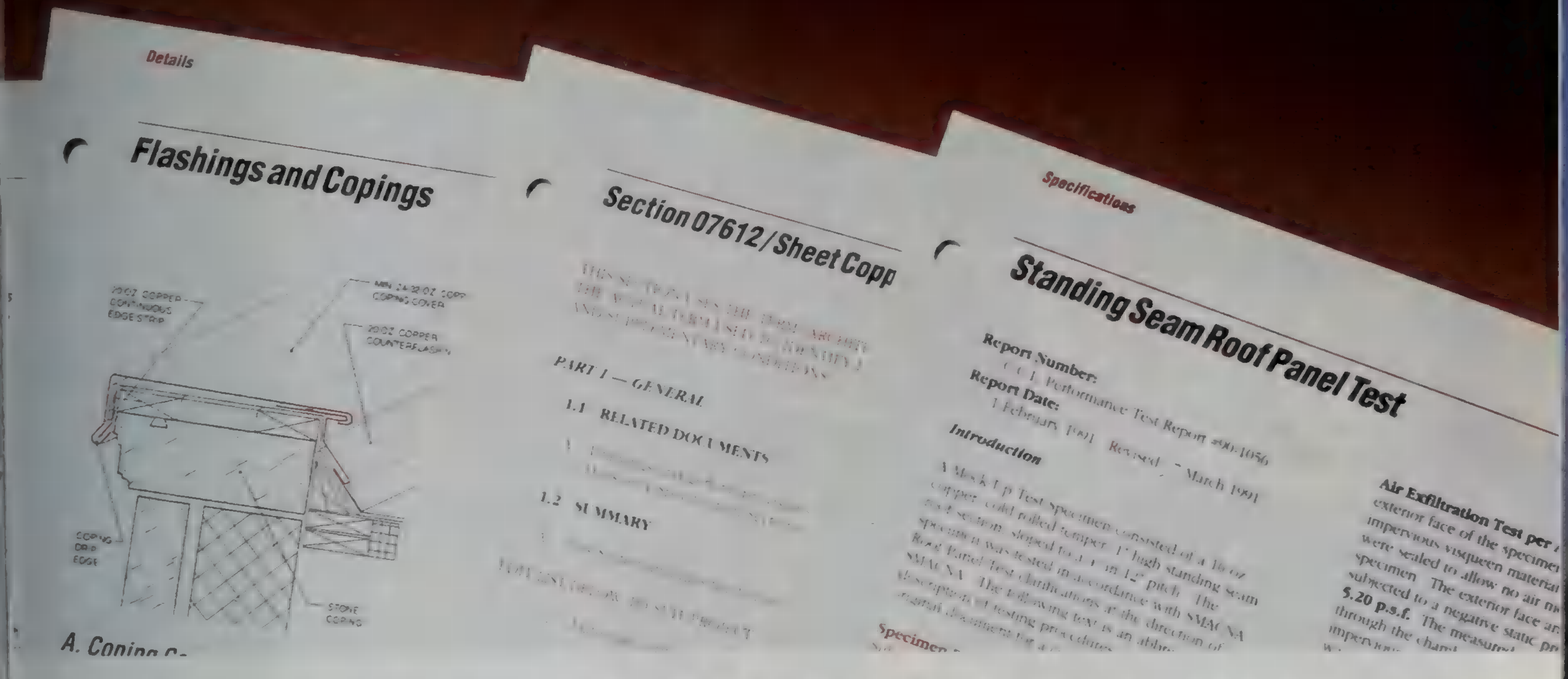

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ARCHITECTURAL RECORD 6/1996

Building Types Study 738/Community Buildings

These days many Americans find themselves making do with less. Social programs have disappeared; crime lives an extravagant life in many neighborhoods where it had been an anomaly before. And now the race to get onto the information superhighway threatens to create a new kind of class distinction in our society: The information-rich versus the information-poor.

Fortunately, architects can help balance the scales when they seize opportunities to design community buildings that make an appropriate response. Community facilities can become places where social services are offered to the young and old alike, such as the three featured this month: Sepulveda Recreation Center in Los Angeles, by Koning Eizenberg (pages 78-81); Irvington, Community Center, Fremont, California by ELS/Elbasani & Logan Architects (pages 82-87); and George Robert White Youth Development Center in Boston, by Leers Weinzapfel Associates with Chisholm Washington Associates (pages 88-91).

When police precincts are decentralized, and facilities encourage the community to become involved with law enforcement, crime rates drop: witness the Tempe, Arizona Police Station, by Architekton (pages 96-101).

And many community libraries now offer more than books. They offer access to computers and the Internet for anyone who desires them, like the featured libraries this month: San Antonio's Great Northwestern Library (pages 68-73), by Lake/Flato Architects; the Clayton Community Library in California (pages 74-77), by Simon Martin-Vegue Winkelstein Moris; and the Ross University Hills Branch Library (pages 92-95) in Denver, by Michael Brendle Architects. *Charles Linn*

ntinuing Education
is issue contains the third installment of the AIA/ARCHITECTURAL RECORD Continuing Education Series. After reading the four cles in the series (pages 66-67; 68-73; 91; and 96-101) identified by the inctive round logo, reply to the stions (page 169) and check your wers (page 171). AIA members may out the self-report form in this issue ges 173-174) and send it in for two Learning Units. Use the learning ectives below to focus your ly.–*Mark Scher*

Scher is AIA Director of Continuing ation Programs and Products.

ning Objectives
r reading the article series and coming the exercises, you will be able to:
- escribe two current design approach- for law enforcement facilities that courage community involvement.
- entify two tactics for adapting to luced public funding for community ilities.
- entify at least two changes in rent library designs that go beyond ditional considerations.

ufacturers' Sources d on page 122

Community Buildings: Coping With Cultural Change

Community facilities—libraries, police stations, community centers, and the like—are the knots that tie together the fabric of our towns and cities. They enrich the quality of life for individuals to an extent that can only be attained through collective organization—how many could afford to own thousands of books and a building to house them, a private security force, or have their own indoor basketball court? And, who would want to? The best part of the richness of community facilities is that they are shared.

The transformation that community architecture is undergoing in many ways reflects changes in our culture: the age of the Internet and the electronic storage of text will unalterably change the architectural form of our libraries. Many community centers now provide an array of social services, not just facilities for sports and the arts. And crime in American cities has created a strong push for community policing, which has changed the way law-enforcement facilities are located and built.

Community centers serve everyone, not just the athletic

According to James Colley, the director of Parks, Recreation, and Libraries in Phoenix, part of the changing role of community centers has come about because changes in the philosophy of local governments—and resulting losses in public funding—have altered what governments can and can't provide for the public. "We now have to collaborate between city departments and private, non-profit social-serving agencies to serve the population. I see it as a partnership: we have to work together, because of diminishing resources, to maximize use of the facilities and the dollars we have left.

> *"Government can't go back to the old days, owning a recreation center purely for recreational purposes. It has to serve a wide diversity of populations..."*

"Government can't go back to the old days," points out Colley, "owning a recreation center for purely recreation purposes. It has to serve a wide diversity of populations and their needs, dollar-wise, staff-wise, maintenance-wise, everything. A community center can house social services for seniors, like Medicare and social security. For teens we offer a place to apply for a job, pregnancy counseling, a drug problem, school drop-out counseling—any service. We don't [illegible] ourselves to recreation. We make the most of the facilities—we don't have to go out and duplicate those facilities for a very specialized program because we've already got space for them."

[illegible] means that when architects are [illegible]mming community [illegible] they should check with their cli[illegible] that spaces for meetings of different sizes, classrooms, office space that is appropriate for counseling sessions, and in some cases kitchens, are included in addition to the athletic facilities that were traditionally required.

In Phoenix, resources were conserved by constructing multi-generational facilities that serve the youth and elderly instead of just a single group. "About four or five years ago we built three of these facilities, about 35,000 square feet each," says Colley. "One side is primarily a senior facility where we work with our human services department to provide food services. On the other side we have a component for a typical youth program; between them we have meeting spaces for either group to be used for whatever purpose they need."

Law-enforcement facilities reach out to the public

Fifty years ago, the typical image for a police precinct station was that of a fortress. "Constructed in that era, it was an appropriate image for a police station to be seen as impenetrable," says Mike Erp executive director of the Washington State Institute for Community-Oriented Policing. "It was a place where the cops could do their work without the fear of being invaded by the public. But in an evolutionar process, police are beginning to realize that image and substance are very closely related. We as police practitioners can no longer present the image that we are isolated, distant and cold, non-caring."

Architects should take note of two trends Erp sees in the constructio of law-enforcement facilities, trends which ultimately may lead to ne design opportunities. The first, that these facilities should be more open-looking, has been somewhat hampered by the need for security in law-enforcement buildings. But Erp has noted a change. "Little b little, as police have the chance to construct new facilities, they're allowing their needs for security to be tempered, and are creating a more customer-friendly type of facility.

"There is still a concern about the individual on the rampage who might wander in, but little by little you're starting to see that, at leas architecturally, there is the creation of more openness. You're seeing larger entryways, vaulted ceilings, a lot more glass, meeting rooms for the community, where before you might have just seen brick and mortar and bars. But even in localities where there has been a movement toward this more-open environment, you'll still find metal detectors, just like at an airport."

The second trend Erp sees is decentralization of these structures—from a few large facilities in a few areas of a town to many smaller structures that are established on almost a neighborhood scale. The may come in a number of ingenious forms, according to Erp, both to control cost and to allow for portability.

"One is a storefront-style police station, in a rented or donated spac in a downtown or strip mall. Another is the mini-station, which migh be a portable recreational vehicle or a small facility that is a complet police station. It might even have a jail, or just a place where officer can take down a report, so it's basically just a scaled-down version o headquarters." Portable "cop shops" are often set up in troubled *ommunity architecture changes with the ulture. To find design opportunities, rchitects must see how our culture evolves.*

Continuing Education
For learning objectives and instructions, turn to page 65.

ghborhoods on a temporary basis, and are moved once crime is ler control. "The neighbors really have a hard time giving them " says Erp.

raries: maintaining community in the information age

s a popular notion that there will soon come a time when a person summon virtually any information they might desire through a nputer that could be located almost anywhere, and that libraries all practical purposes will be obsolete. Architect Carol Ross rney, of Ross Barney Jankowski Architects in Chicago, who has eral libraries to her credit, disagrees. "I think probably the oppo-'s going to be true. Data is just data. Only when someone is able to it in a certain way does it become information. That is going to be librarians' role, so it actually makes libraries more important than y were in the past."

the present, Ross Barney sees several changes in library design t architects should note. "All the libraries we've done in the last years have really moved into a new type of information manage-nt. They're heavily electronic. We're probably even at a point re the technology handicaps the building the most [in terms of ing and special indirect lighting for computer terminals]. A lot of ple are going to a fiber-optic type of technology, which really eases the amount of data you can send. I think that the technolo-aspect of it will get easier if anything. It will be more sophisti-d, but it will be less demanding on buildings."

ther change is in the area of spaces for specific library programs, Ross Barney, which are intended to enhance the place of the ary in the life of the community. Some of these include spaces for drens' story hours, galleries, community meeting rooms, and cial spaces where computers can be used. "The library isn't just place where you keep the books. There is a lot of community and cational programming that goes on far beyond reference work and ks. It plays a big part right now in planning and building a library. still create a lot of spaces than you would expect in a library tradi-ally, but there is also lot of sophisticated machinery that's lable to the patrons, like computers they can use, that go beyond typical buying a book and keeping it on the shelf.

've also had a lot people talk of the quality about their work and y environment. There is a real interest in getting daylight in the es for example, and certainly all the study areas. When we design ry furniture, ergonomics is really important—all this bears out notion that patrons have a hidden awareness of the quality of the ronment."

thing that hasn't changed is that people are concerned about the e of the library in their community. "In terms of American archi-re," Ross Barney says, "I think that libraries have a really g image, thanks to Andrew Carnegie's program to build one for ody who ever wanted one. Almost every one of the communities e they have a Carnegie Library wants to retain that same, g, dignified image." *Charles Linn*

In community-oriented policing, police facilities are decentralized, and located where they may be needed most. Often they are placed in storefronts or kiosks like this facility in New York City's Times Square. The presence of police personnel who constantly staff such facilities deters crime, makes people safer, and offers a place to file police reports or just ask for directions.

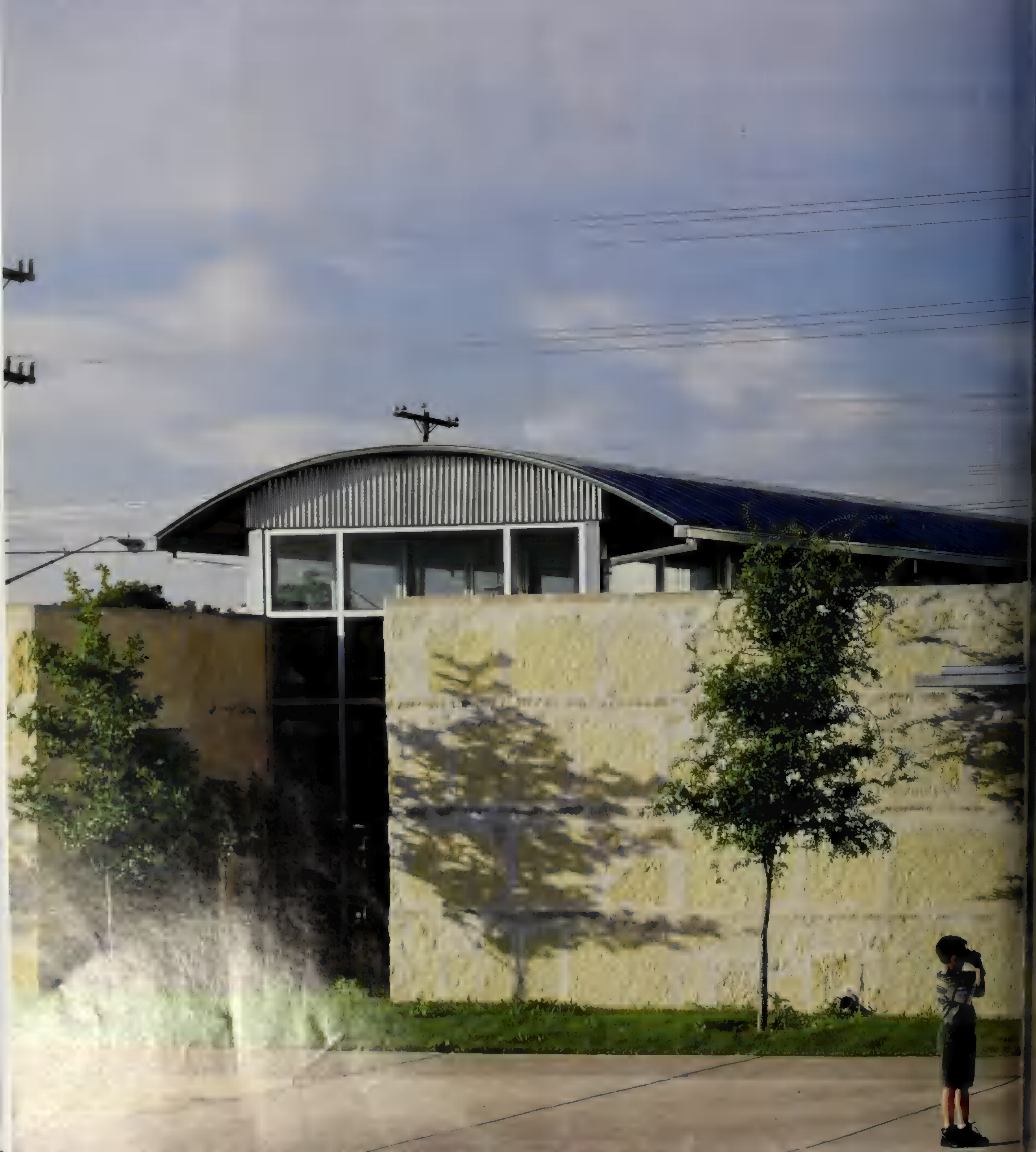
As culture changes, community facilities like this public bath house on New York's west side also evolve. This one was built when many residents had minimal indoor plumbing. Later it was used as a public swimming pool, and still later, for lifeguard training.

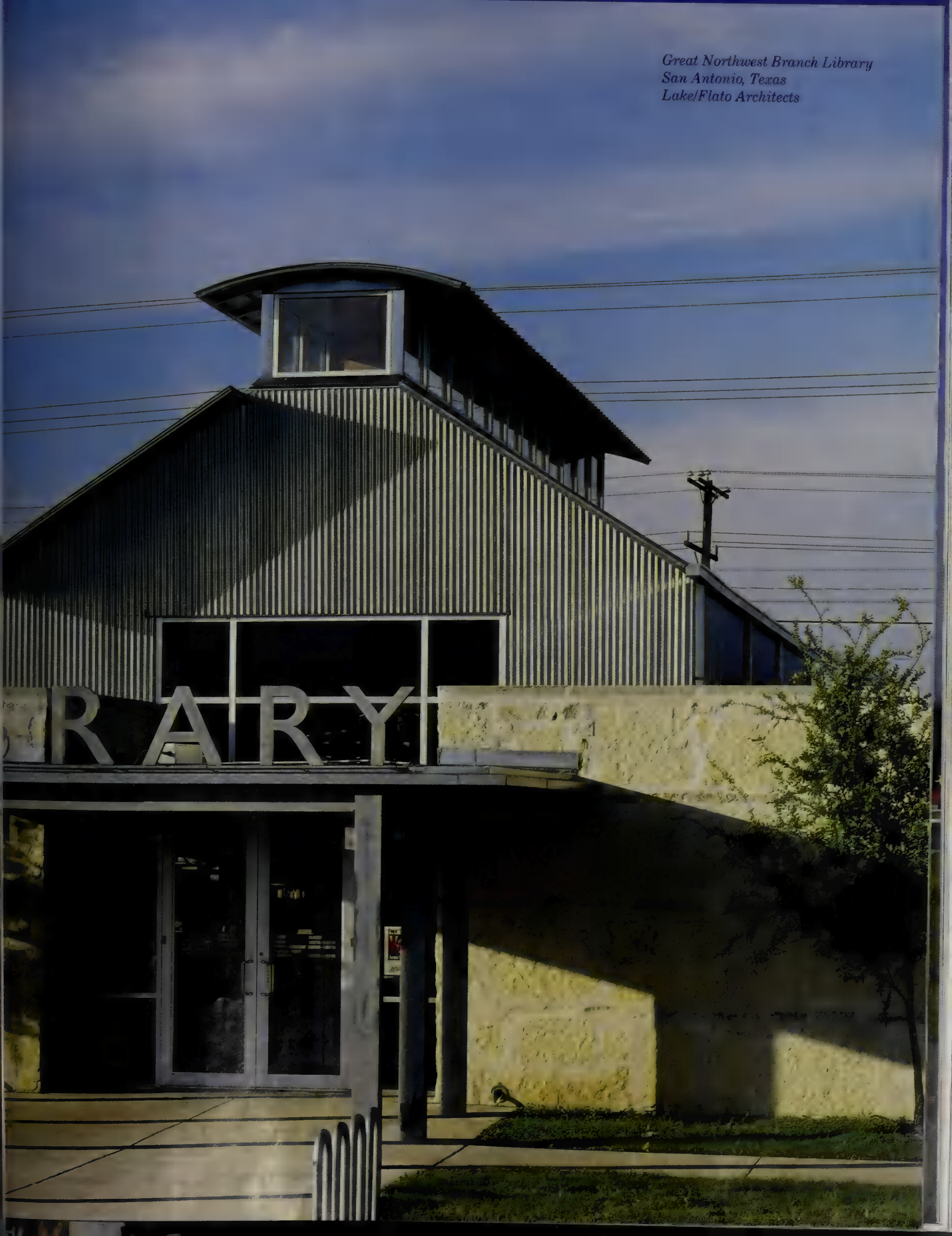
A computer area in Gwathmey Siegel and Associates' new Science, Industry, and Business Library in New York shows what libraries in the future might be like, but books—and libraries themselves—seem destined to survive for a long time to come.

© Charles Linn photos

A Warehouse For Books

A suburban library fashions a community gateway with regional vernacular and industrial imagery.





Great Northwest Branch Library
San Antonio, Texas
Lake/Flato Architects

Ricardo Legoretta's Main Library in downtown San Antonio, Texas was not the only library construction in the Alamo City last year. The Great Northwest Branch Library by Lake/Flato Architects, scions of O'Neil Ford, was one of several in a bond-financed program.

In response to lobbying efforts by The Great Northwest (the subdivision's actual name) civic association for a library in their area, the city purchased an empty field on a busy, low-density commercial street. Located at the intersection of the main entrance to the neighborhood sequestered in the wooded hills beyond, the library becomes a gateway and provides a distinctive identity for the community. The neighborhood association was involved throughout the design of the library, giving the community a sense of ownership and participation.

In a commercial-strip context, the library brings the semi-rural self-image of the established middle-class neighborhood out to the commercial thoroughfare with subdued style and appropriate scale. At 12,000 square feet, the one-story library is similar in proportion to its less-attractive neighbors, though set closer to the street. The "front" is actually in the back, facing the neighborhood approach, along with the parking. The building is placed on the site to allow for expansion to double its size with two bays to the east and five bays to the north, eventually forming an L-shaped plan.

Described by architect Ted Flato as a "warehouse for books," the library program is very simple. Aside from a community meeting room, toilets, and a small private work area, the interior is one open space. A librarian at the circulation desk can see everywhere. With a budget of barely $90 per square foot, the building had to be very efficient, planned for flexibility, growth, and visual control. Like a grocery store (for books), Flato notes.

The apparent simplicity of the modularized plan is contradicted by the complexity of the building's section. Organized into seven bays, the volume alternates four low, flat-roofed areas for books with three high, clerestory-lit areas for reading. Stone walls protectively enclose the book bays, which are dense with building systems: metal and wood trusses, pine decking, exposed round ducts, industrial fluorescent strip lighting, and book stacks. Daylight permeates the interior but in a controlled fashion: the intense light of the south-Texas brush country seldom reaches the floor.

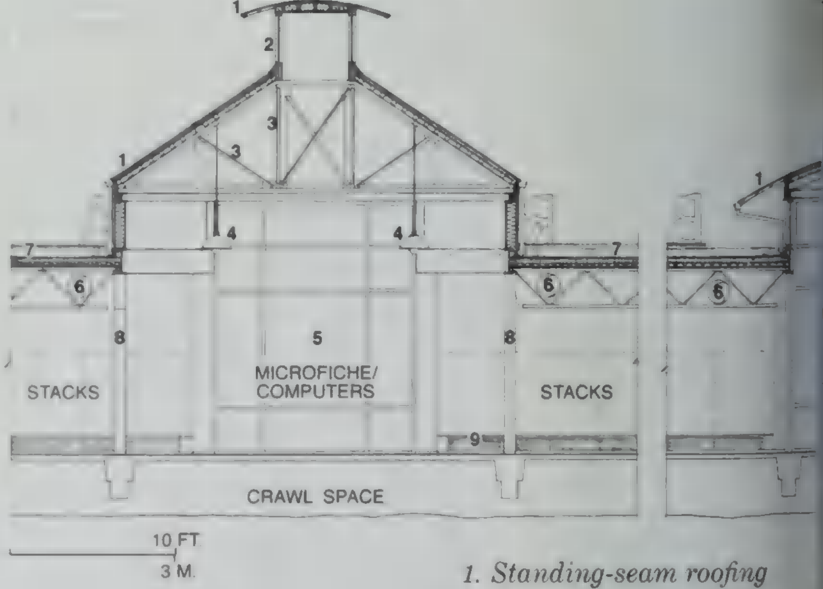
The lean design and limited palette of materials reflects the architects' ability to get the most out of limiting circumstances, including vandalism problems. The materials and methods of construction, left exposed to view, are the library's ornament. There is nothing on the exterior to be painted, just natural stone and galvanized metal. Images and references are contrasted and juxtaposed. For example, the industrial-steel frame with corrugated siding and metal windows is set in counterpoint to the rural vernacular stone work. The stone pattern has become something of a Lake/Flato trademark, using "old yella," a locally-quarried ochre limestone in flat sheets, coursed with a [illegible] line of gray limestone similar to natural geological layering. The masonry is laid up with the "German-smear" grouting technique found in the immigrant [illegible] of the Texas Hill Country.

[illegible] likewise little [illegible] for maintenance and virtually none [illegible] landscaping. Trees that [illegible] planned to soften the site [illegible] into the wooded [illegible] cut from the budget at [illegible] The architects [illegible] with the civic association [illegible] lish native grasses [illegible] for a no-maintenance [illegible]

[illegible] *Moorhead*

From the busy commercial street, the library is almost formidable (opposite upper right). Heavy stone masses project forward of the light-metal structures, protecting windows in a defensive posture against vandalism, presenting a solid wall to the street. The louvered screens around the air-conditioning-package units further shield the window embrasures. The lightweight-metal structure of the reading bays appear to rise from within the protective enclosure of heavy, rustic stone walls.

The library's front is turned toward the neighborhood (opposite lower right). The functions within the library are expressed in the rhythm of low stone book bays alternating with high illuminated reading bays, inspired, according to partner David Lake, by Louis Kahn's concept of servant-and-served spaces.

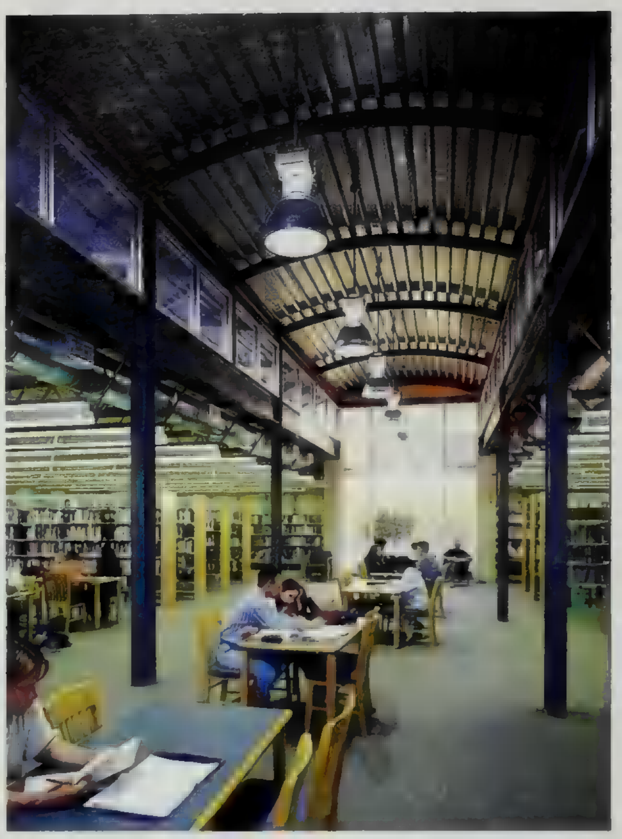


1. *Standing-seam roofing*
2. *Insulating-glass clerestory*
3. *Steel-angle trusses*
4. *Light fixtures*
5. *Aluminum window frame*
6. *Air ducts*
7. *Single-ply roofing*
8. *Steel columns*
9. *Return-air base*

Continuing Education
For learning objectives and instructions, turn to page 65.

L I B R A R Y

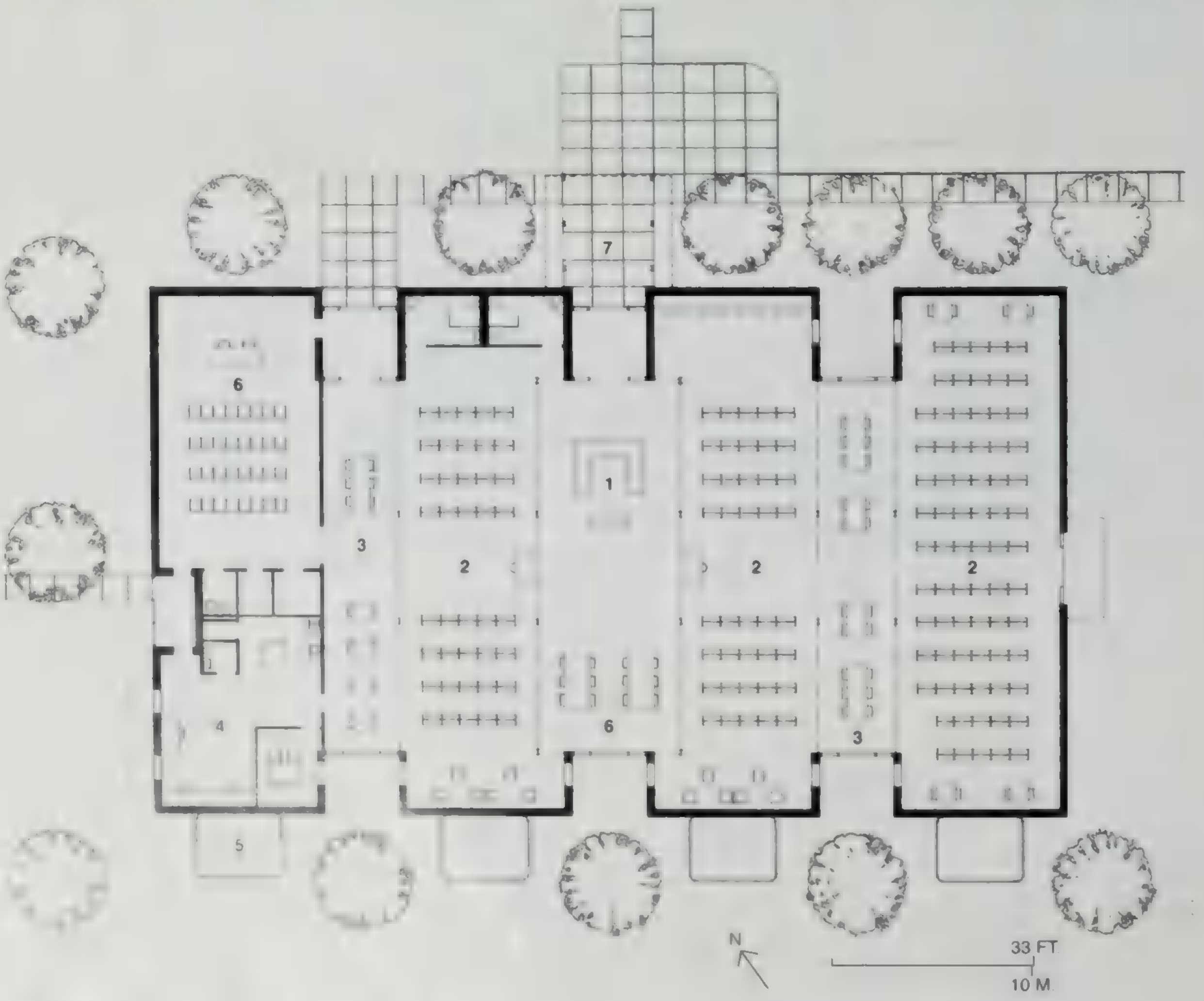
LIBRARY



Although the library is just one big room, there are comfortable, quiet places to sit and read. The glazed end walls of the high bays are recessed back from the stone enclosing walls of the low bays, forming mini-courts around which seating is placed. The hig bays are also pleasant to sit under since the book stacks and perforated roof decking system soften the acoustics.

Louvers over south-facing windows and plywood panels in the high monitor shield the interior from direct light while the clerestory windows diffuse natural light throughout the interior. Although the librarian required a lighting level of 80 footcandles in the stacks, daylight is comfortable throughout the library even without the fluorescents.

Credits
Great Northwest Branch Library
San Antonio, Texas
Architect: *Lake/Flato Architects—Ted Flato, David Lake, Kim Monroe, Joaquin Escamilla, Robert Trinidad, architecture team*
Engineers: *Structural Engineering Associates (structural); HMG & Associate (mechanical/electrical/plumbin M.W. Cude & Associates, (civil)*
General Contractor: *Kunz Construction Company*

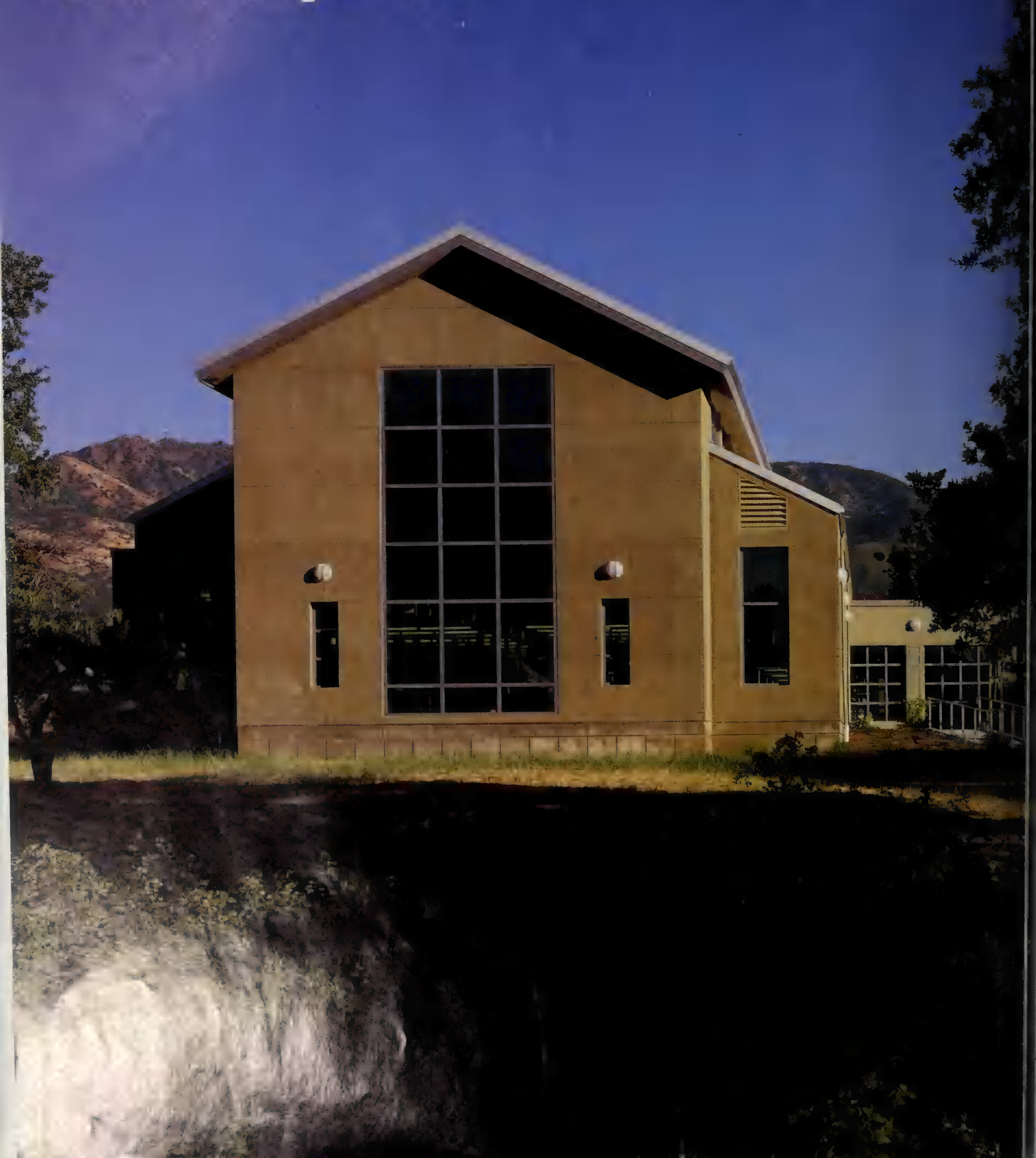


1. Circulation desk
2. Stacks
4. [illegible]
Workroom
[illegible]

EXIT

Making Books A Civic Symbol

Clayton Community Library
Clayton, California
Simon Martin-Vegue Winkelstein [illegible]
Architect



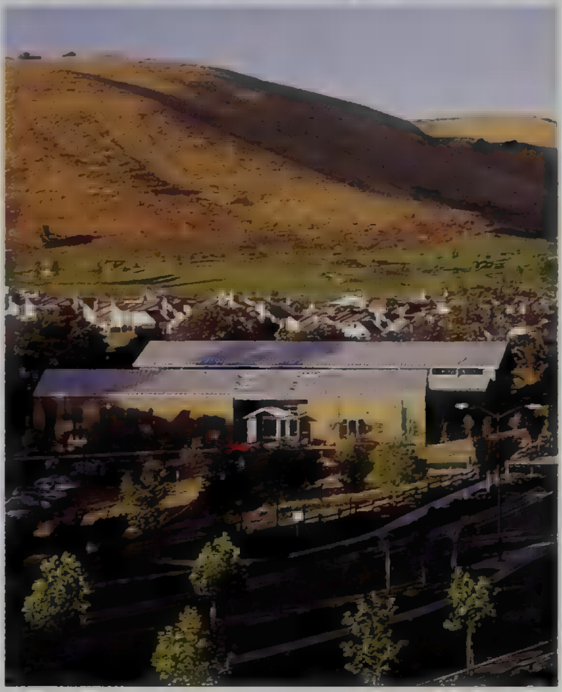
lly a stagecoach stop, Clayton, California, is one of those lovely towns just beyond a big city that is beginning to attract young ssionals and dual-income, multiple-computer families. Forty-five es east of San Francisco, the town has 8,000 residents and a hislandscape that includes 19th-century farm buildings and an old winery. But its city hall is assembled from mobile structures -before its new library was completed last year—it had no civic ecture to speak of. Today, the 15,000-square-foot library is a ol of the new Clayton—a town that grew by nearly 70 percent 1980s and is getting wired for the 21st century.

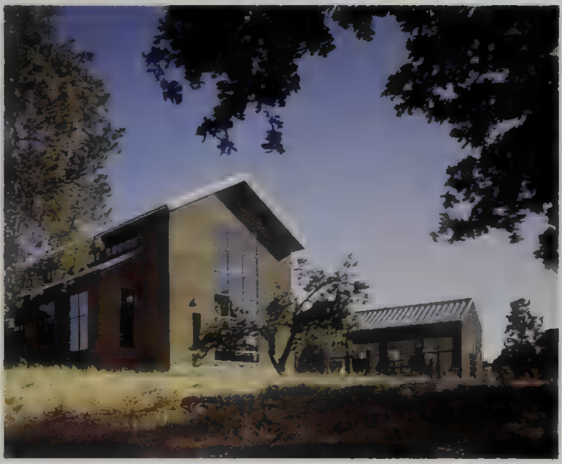
the closest branch nearly six miles away and the school-age popn growing rapidly, Clayton residents said in surveys in 1988 and hat getting their own library was a top priority. Spurred on by a ated group of local women, residents established the Clayton nunity Library Foundation and received state funding from a issue known as Proposition 85 that passed in 1988. Ultimately, els of government were involved in the project—the state pro two-thirds of the financing, the county serving as the operator library, and the city as primary client.

f the key challenges facing architects Simon Martin-Vegue lstein Moris was designing a building that would fit within a landscape while at the same time standing as an important civic l. After many meetings with town residents, the architects ped a design that strongly recalls agricultural buildings with gable roofs and shed-like forms, but assumes a more honorific e inside with suspended barrel-vault ceilings and proportions nined by fitting an imaginary circle within the main reading or "great hall of books." "We wanted to get enough height in to ennoble the building," explains Cathy Simon, the partner-in-. Organized as two bar-shaped buildings splayed on either side w browsing room and courtyard, the library is 33½ feet at the of the main structure and 25 feet high at the ridge of the g room.

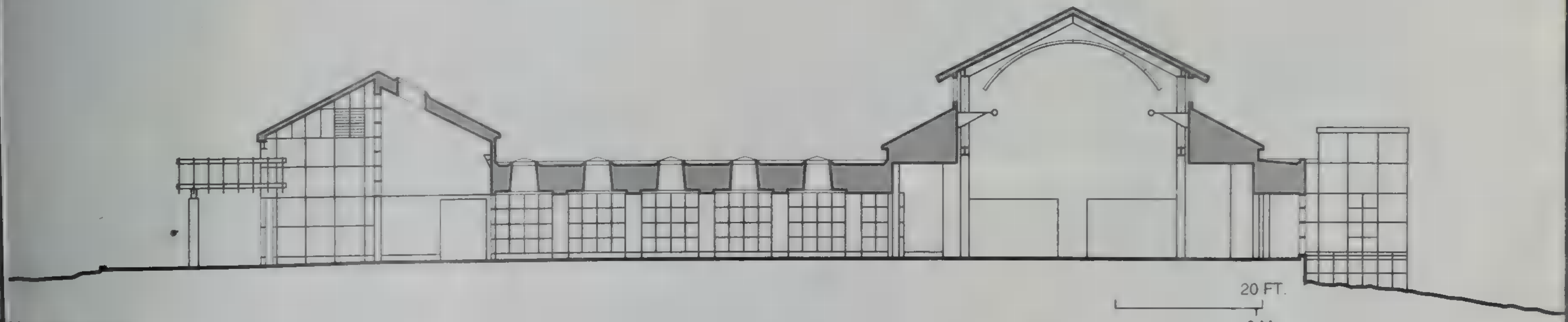
cting the building to the landscape was another important n. The architects opened the building to views of Mount Diablo south and a creek and farm buildings to the north. They also ed a large courtyard that serves as an outdoor extension of the g room. Daylight from clerestory windows bounces off light s and corrugated-aluminum vaulting in the reading room, g ambient lighting, while task lights on reading tables are supnted by windows along the room's perimeter. "We wanted to put t where you need it," says Simon. To keep staffing costs down, ary has just two checkpoints—an information desk in the g room and a circulation desk outside the room. According to Marie Gold, the Contra Costa County librarian, the Clayton is now one of the busiest in the county and has become the y architectural symbol in town. *Clifford A. Pearson*

© Nick Merrick/Hedrich-Blessing photos

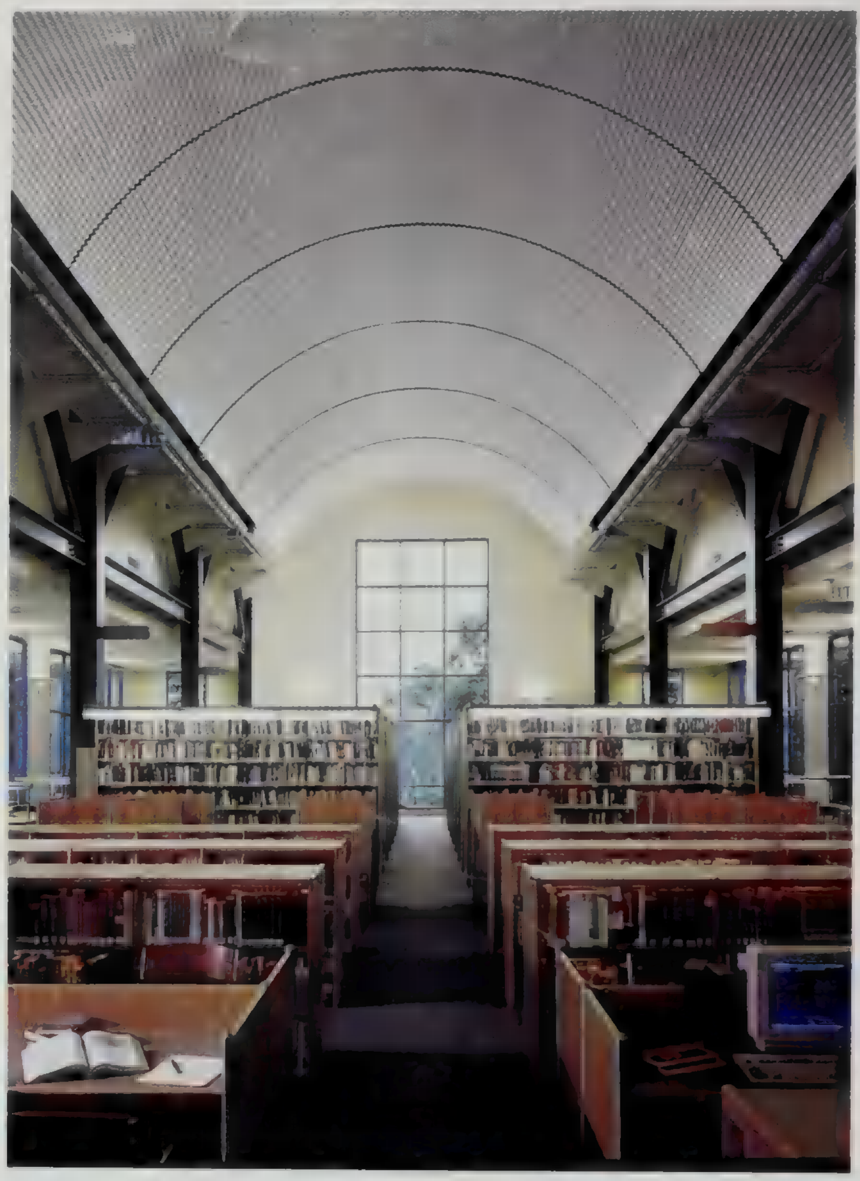




The $2.8-million library is a simple steel-frame structure clad in colored stucco that picks up the hues of the surrounding landscape. Although the architects had explored several roof options, the community expressed a strong desire for a gable design that recalls agricultural buildings.

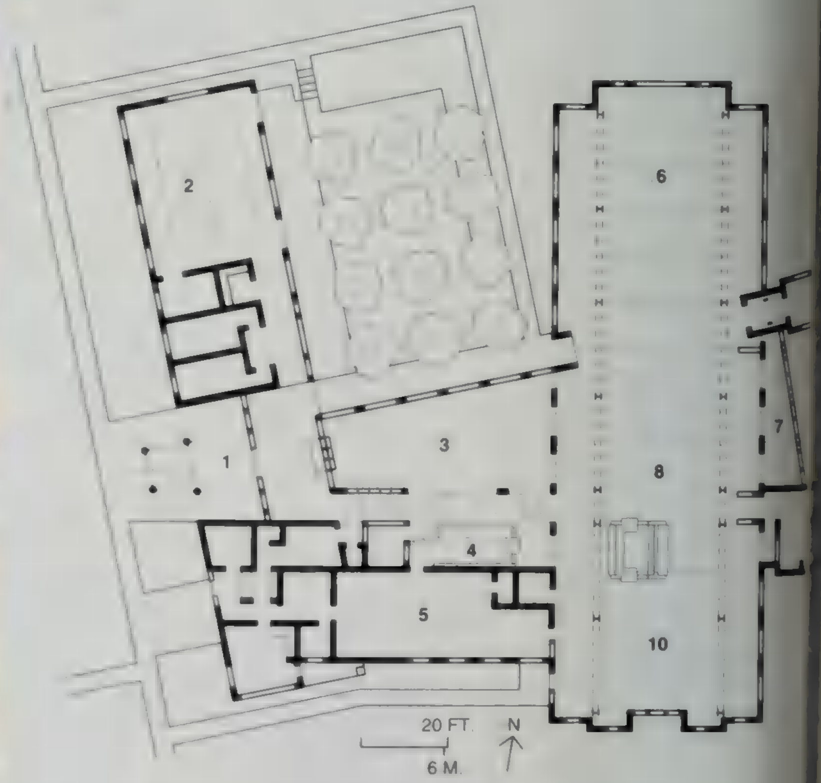


T-EST SECTION



The main reading room or "great hall of books" (left) is a basilica in plan, with stacks in the nave and reading tables in the aisles. Seismic bracing run along the east and west walls below clerestory windows. The circulation desk (bottom left) offers self-check-out service. Th meeting room (opposite) plays host to city council meetings.

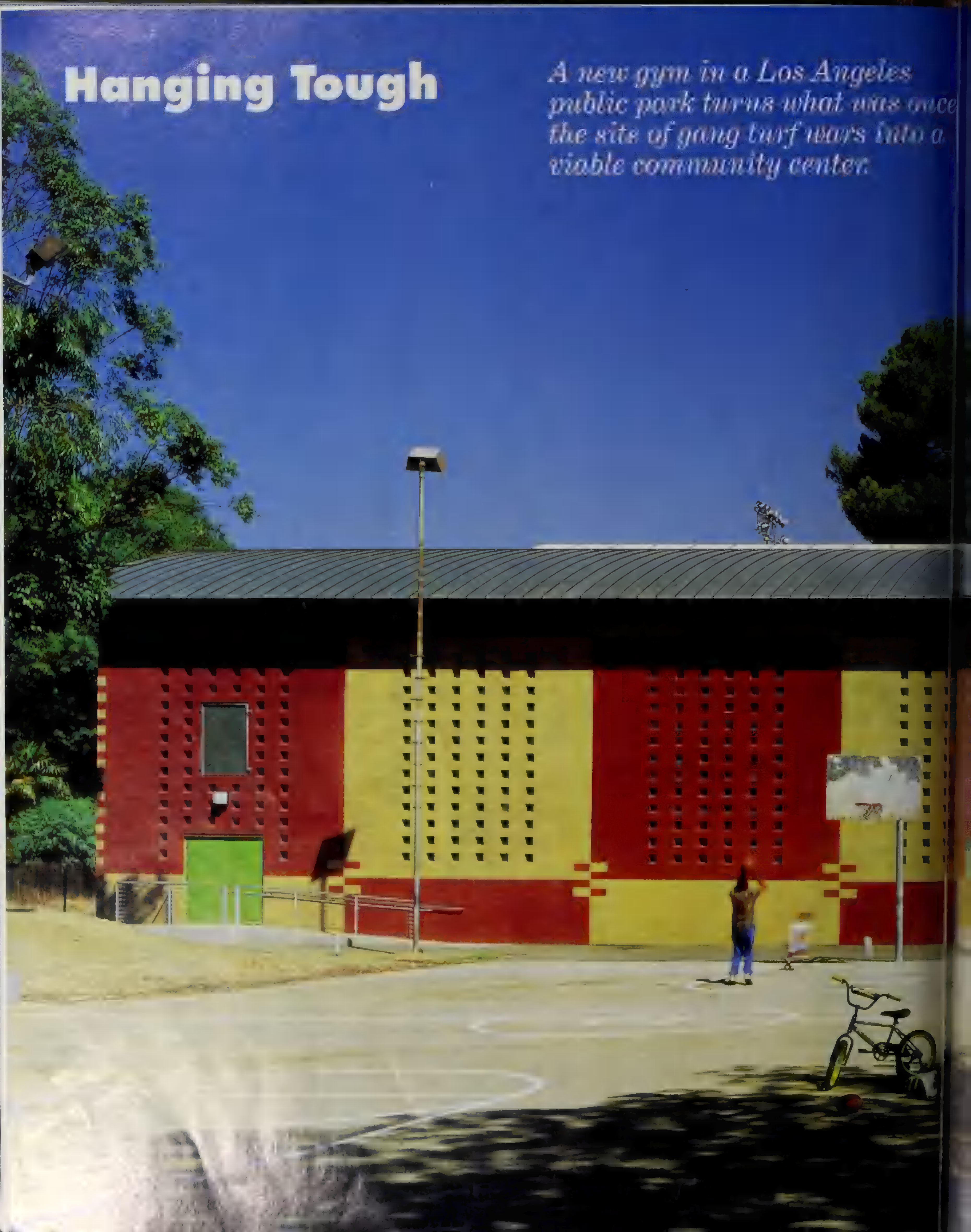
Credits
Clayton Community Library
Clayton, California
Architect: *Simon Martin-Veg Winkelstein Moris—Cathy J. Simon, partner-in-charge; J. Peter Winkelstein, project manager; Linda Sobuta, proje architect; Diane Lam, interior*
Engineers: *OLMM Structura Design (structural); J.L. Engineers (civil)*
General Contractor: *Midsta Construction*

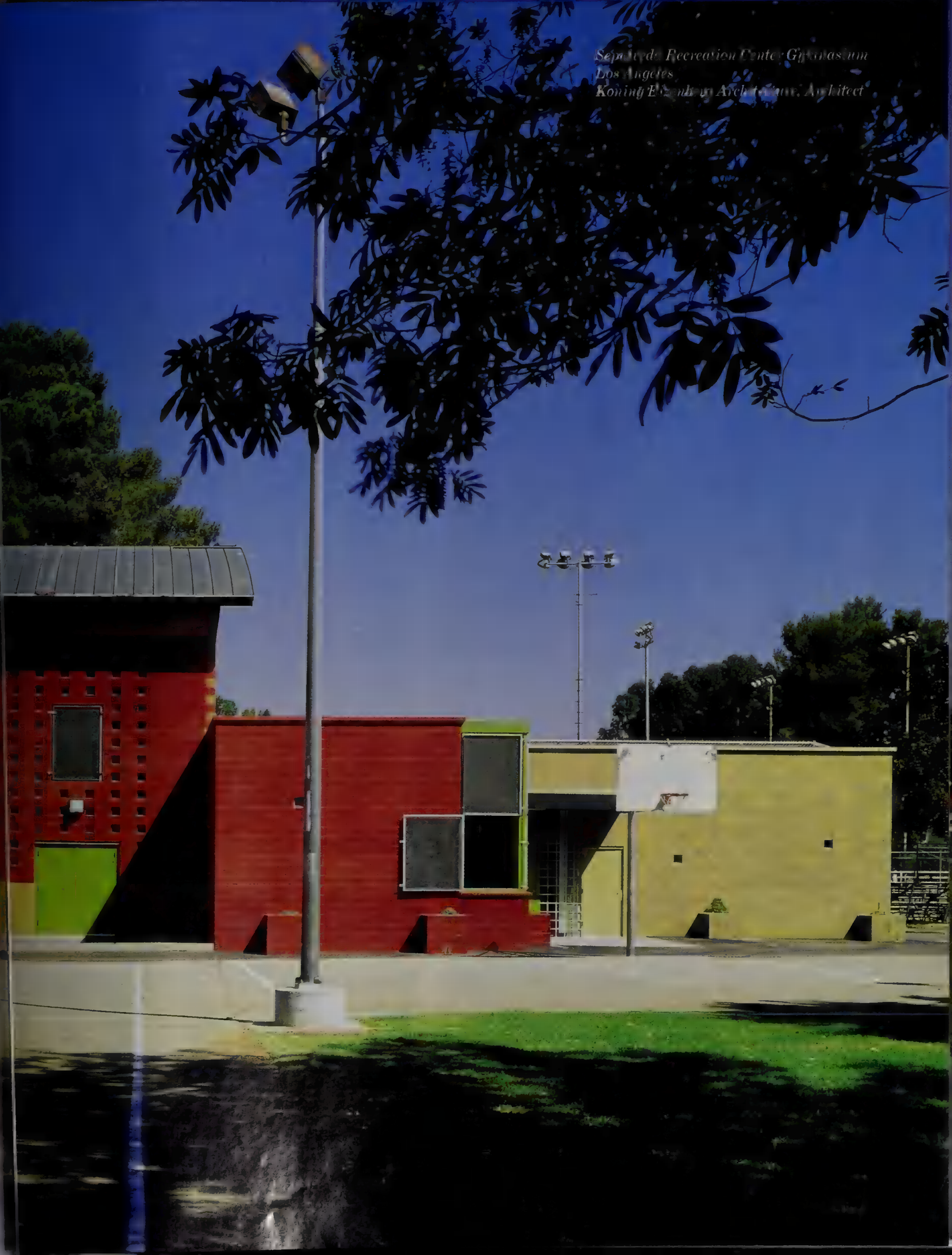


1. *Entrance*
2. *Meeting*
3. *Browsing*
4. *Circulation*
5. *Staff*
6. *Adults*
7. *Young adults*
8. *Reference*
9. *Story*
10. *Children*

Hanging Tough

A new gym in a Los Angeles public park turns what was once the site of gang turf wars into a viable community center.





Sepulveda Recreation Center Gymnasium
Los Angeles
Koning Eizenberg Architecture, Architect

When you design to a set of security and maintenance criteria, [the project] becomes impersonal," says Julie Eizenberg of Los Angeles-based Koning Eizenberg Architecture. The primary challenge of designing the Sepulveda Recreation Center in a troubled neighborhood in the city's San Fernando Valley, however, was to balance security and maintenance criteria with a seemingly opposing agenda—the need for a welcoming, community-oriented facility—and do it all on a tight budget.

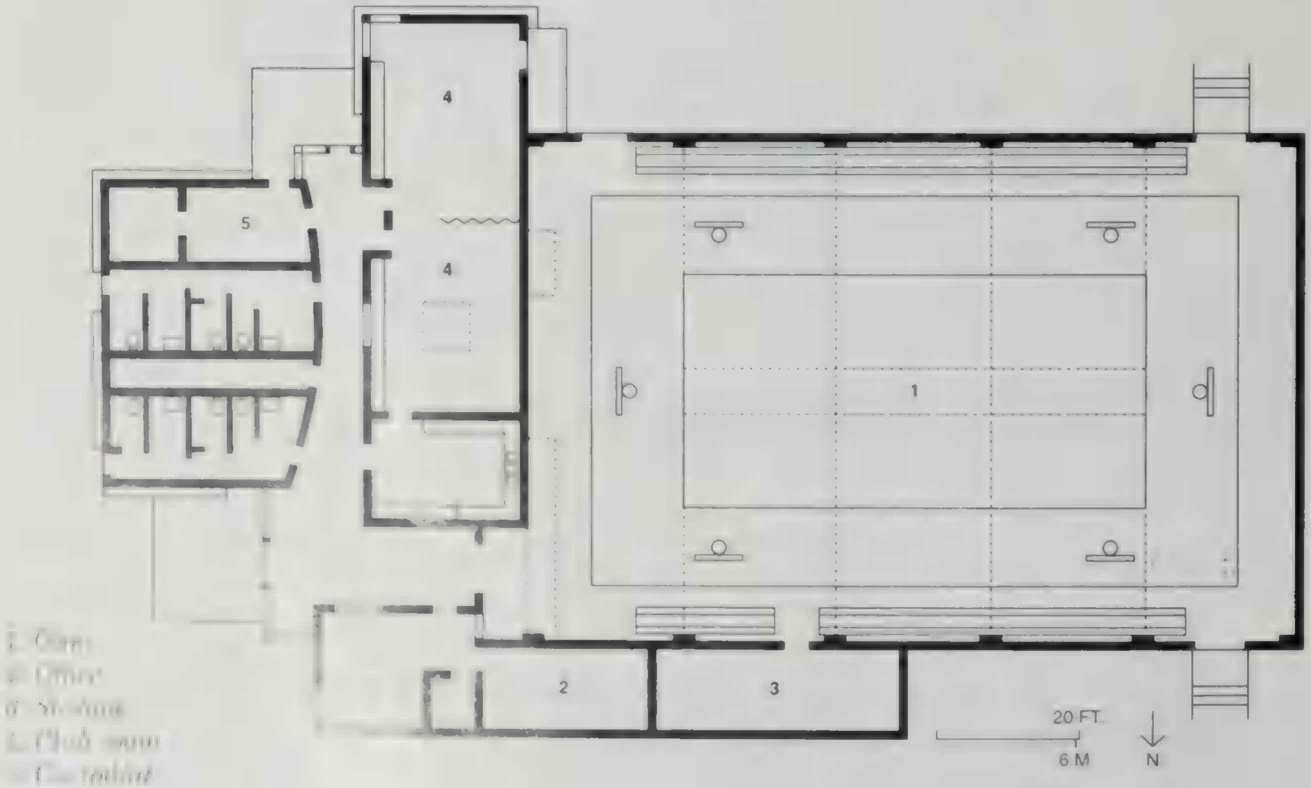
Set in a park that already had mostly outdoor recreation facilities—basketball courts, baseball fields, a pool, tennis courts, and an existing but aging community center—the site was something of an urban war zone, ruled by local gangs. The decision to build a new gymnasium with club facilities was the result of a community-outreach program conducted by the City of Los Angeles Recreation and Parks Department.

That process, drawn out over several years, produced the building program presented to the architects, who had previously applied to the department for work and been placed on a list of qualified architects. Although there was some initial discussion about remodeling the existing center, the decision to build a new one had as much to do with providing updated facilities as with the community's desire to take back territory from warring gangs. "It's about taking space anybody can use and making it controlled in its use," says Eizenberg.

Because of the need to make the project both vandal-proof and inviting, the building is a hybrid: a 10,000-square-foot structure composed of durable standardized parts like concrete block, glass-block windows, and bright finishes. (Though wood-frame construction would have been cheaper, the materials chosen are efficient in terms of construction, making the total project, at $120 per square foot, relatively inexpensive.) While the client required the architects to use concrete block for its sturdiness, they devised an unusual checkerboard pattern of colors—reds, acid greens, and three subtle shades of tan—that, they say, is meant to reduce an overall appearance of severity and uniformity. "It's a barn [draped] with a picnic tablecloth," says Ralph Lew, project manager for the Department of Recreation and Parks, of the effect. Completed in May, 1995, the gymnasium remains remarkably free of graffiti, a telltale sign to those involved in the project. While the Department employs a "graffiti doctor" to remove gang signing from its buildings as soon as possible, Lew reports that visits to this building have been unnecessary. "People in the area appreciate the building as their own," he says.

Indeed this unconventional building sends a powerful message, not only to the community it serves, but also beyond. The project, Eizenberg argues, presents a model for future recreation development. "There is a suggestion at the moment that the only type of architecture that is appropriate must be specific to a community. There is a preoccupation with one-off-ness rather than the quality of the object." Eizenberg maintains that this building's design, with slight modifications for site, could be repeated in other locations with equal effectiveness. The City of Los Angeles Recreation and Parks Department concurs. It's building a similar project south of the city, in San Pedro. *Karen D. Stein*

Credits
Sepulveda Recreation Center Gymnasium
Los Angeles
Owner: *Los Angeles City Recreation and Parks*
Architect: *Koning Eizenberg Architecture—Hank Koning, Julie Eizenberg, partners-in-charge; Tim Andreas, project architect; Neil Peoples, project manager*
Engineers: *Parker-Resnick (structural); Mel Bilow & Associates (mechanical); Electrical Building Systems (electrical); Fine Line Systems (civil)*
General Contractor: *Fishbeck Construction*

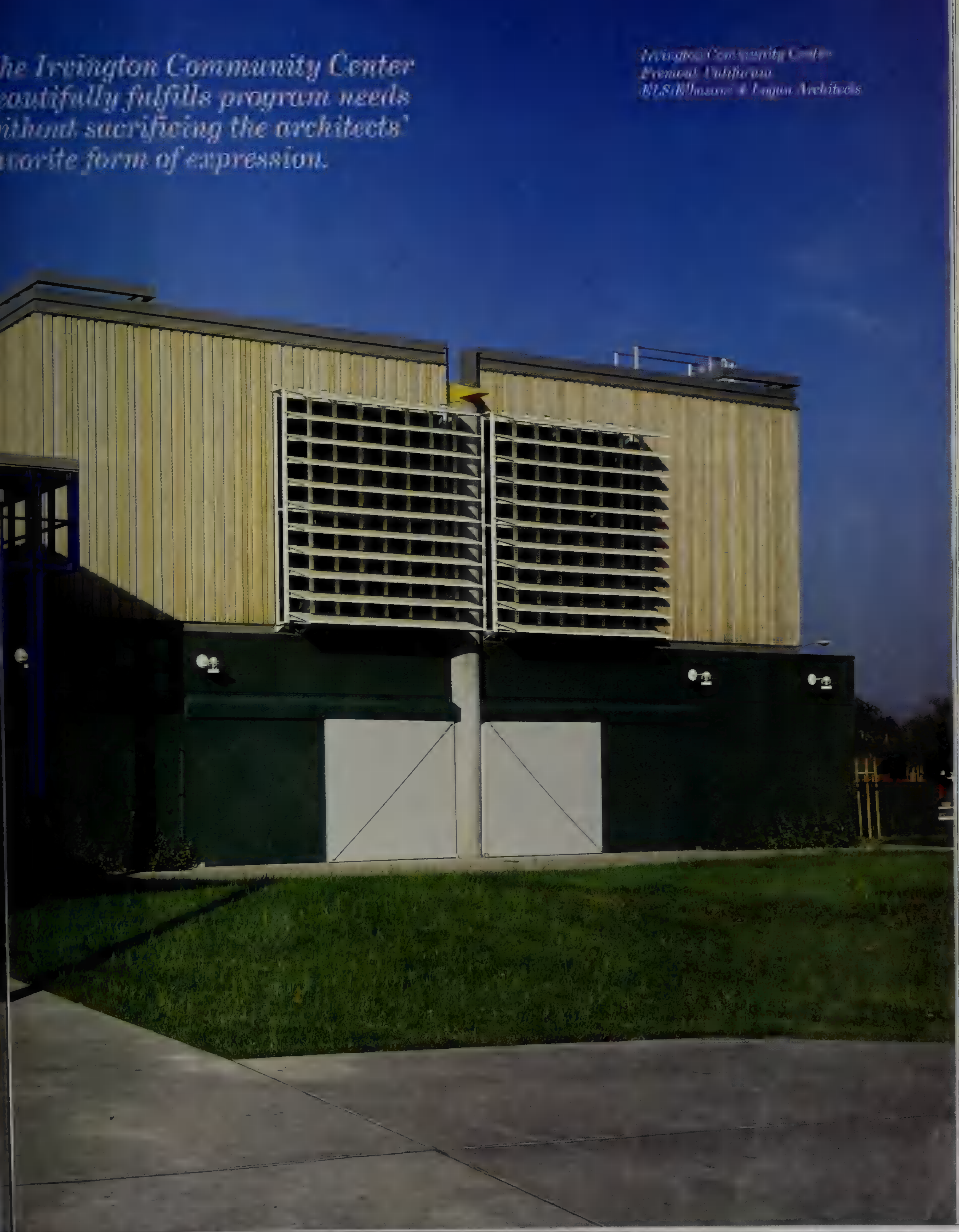


Offices, a club room, a kitchen, public restrooms, and custodial facilities wrap the main space of the gym (plan left). Daylight is admitted to the 10,000-square-foot building through glass block on the east-facing front of the building. Inside, skylights in the lobby and clerestory windows in the gym reduce daytime electrical costs.

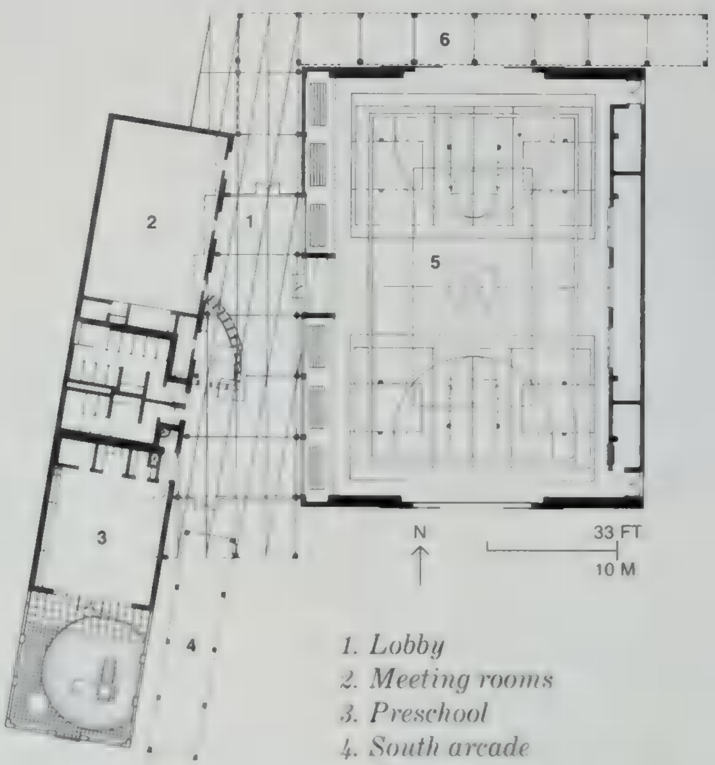
SEPULVEDA RECREATION CENTER
8825

Separate But Equal

he Irvington Community Center
eautifully fulfills program needs
ithout sacrificing the architects'
avorite form of expression.



Irvington Community Center
Fremont, California
ELS/Elbasani & Logan Architects



1. Lobby
2. Meeting rooms
3. Preschool
4. South arcade
5. Gymnasium
6. North arcade

The success of a community center can be measured by how well the architecture responds to neighborhood context, the issues of vandalism and durability as well as how it deals with the programs offered there. Happily, the Irvington Community Center deals well with all three. The Irvington Community Center is home to preschool learning programs, basketball games for a nearby high school, as well as organized and pick-up games of basketball and volleyball. Community rooms are available for rental by church groups, homeowners' associations, and or anyone else who might wish to use them.

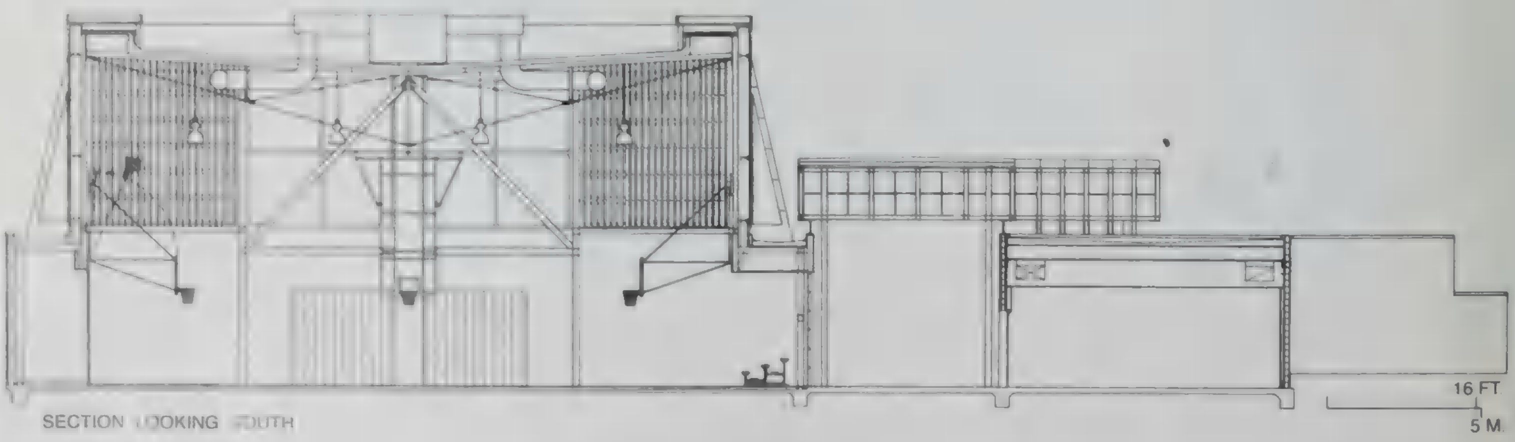
As architect Donn Logan of ELS/Elbasani & Logan discusses the project, several community center design issues emerge. The first is neighborhood context, and the exterior appearance of the building. "It's a residential neighborhood, so the volumes relate more to the school buildings across the street than anything else." One solution to bringing the building back into scale with the neighborhood was to use earth berms to lessen its height, and to provide stainless steel espaliers to support flowering vines; these also discourage grafitti.

"Our tendency is to make things Modern," he says, "but the materials we chose are mostly drawn from our notion that people in the community wouldn't find it acceptable for us to do something so 'hard', so we looked for a way to bring together some things that we were interested in that the community would still like. We wanted to do something that would be soft, but would still express a precise tectonic. This is part of what led to the use of the wood and vines on the exterior of the building."

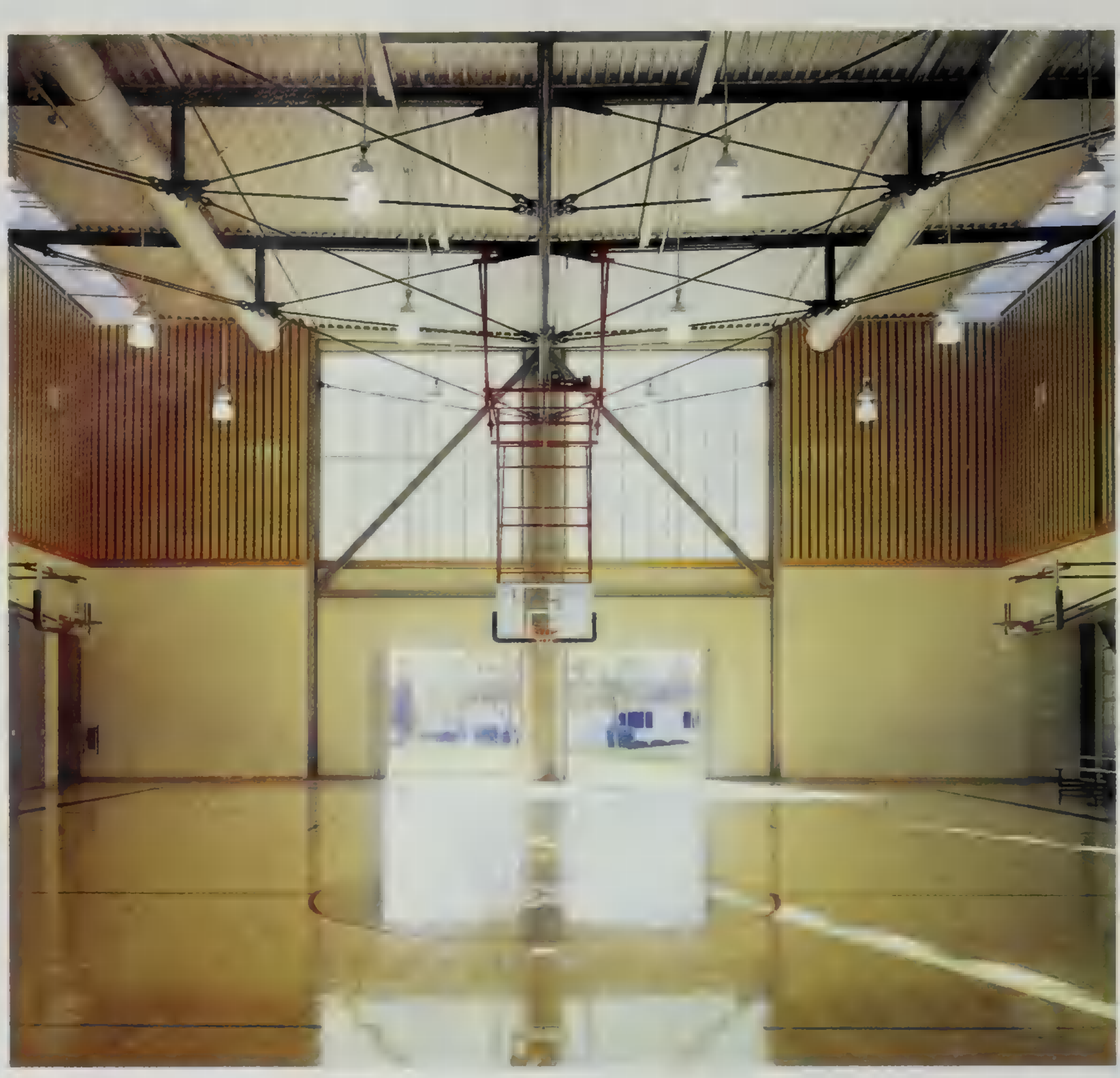
To accommodate the quieter functions of the meeting and classrooms, and the very noisy athletic programs, the architects separated them with a common lobby area. The most distinguishing feature there is a concrete reception desk topped by a sculptural partition made of laminated glass. For security reasons, the owners had originally asked for a secure, lockable office. "We convinced them that most burglars wouldn't be carrying around a 25-foot step ladder," says Logan. To further control noise in the gymnasium, wood strips over steel framing conceal noise-absorbing insulation batts, and perforated metal decking was used in the ceiling.

The gym is also daylit by clerestories on the perimeter, windows shaded by aluminum louvers behind the baskets. "Many owners fight letting daylight into a gym, but they went along with it," says Logan. "You just don't want to go sailing in for a layup and have the sun hit you right in the eye. So you have to control it." *Charles Linn*

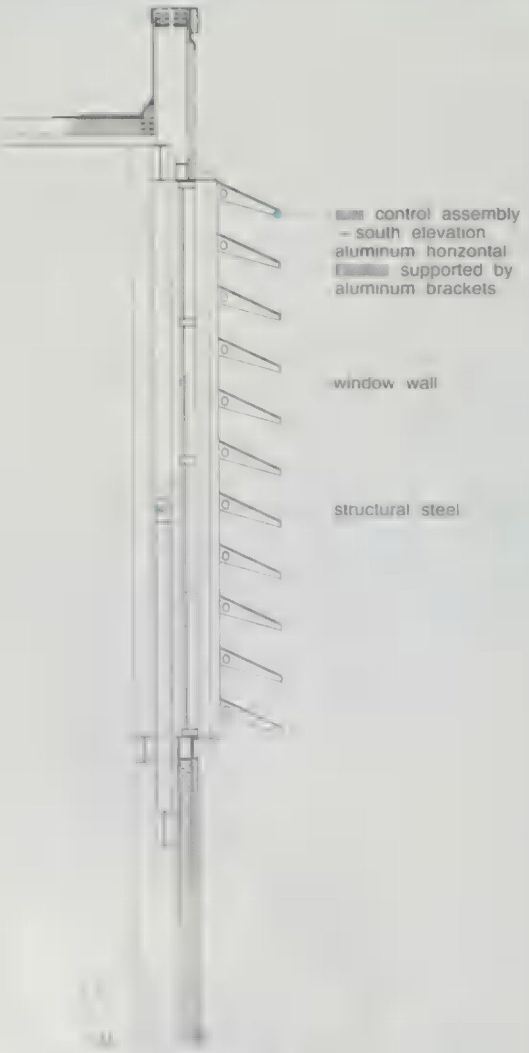
Berms are used to lower the scale of the Irvington Community Center (opposite top). The aluminum sunshade (opposite bottom) reflects sunlight into the gym, as steel barn doors open for cross-ventilation.



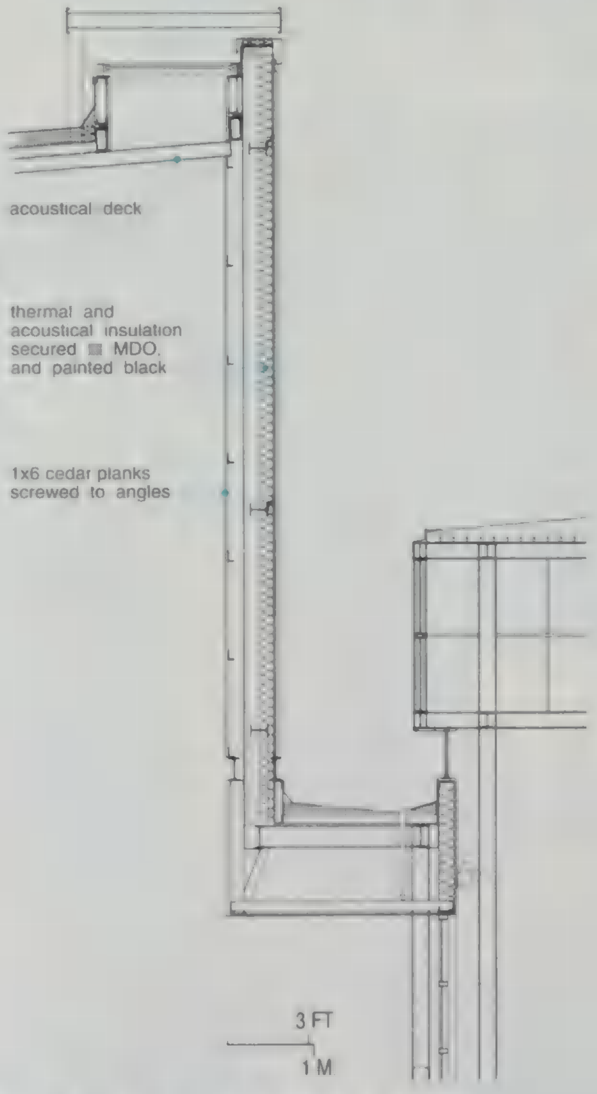
© *David Wakely photos*



Staff can supervise the goings-on in the gymnasium through a glass wall without leaving the reception desk (opposite top). The architects persuaded their client to build a concrete desk, topped by a laminated-glass partition for use as an office in lieu of a "shed" that would have protruded into the reception area (opposite bottom). Details (bottom) show how the aluminum sunshade seen on the exterior of the building is constructed, and the architects' solution for controlling noise in the gym using boards that echo the finish on the exterior of the building. On warm days, steel barn doors in each end of the gym can be opened to allow a cross-breeze (left).


[illegible] control assembly – south elevation aluminum horizontal [illegible] supported by aluminum brackets
window wall
structural steel
M

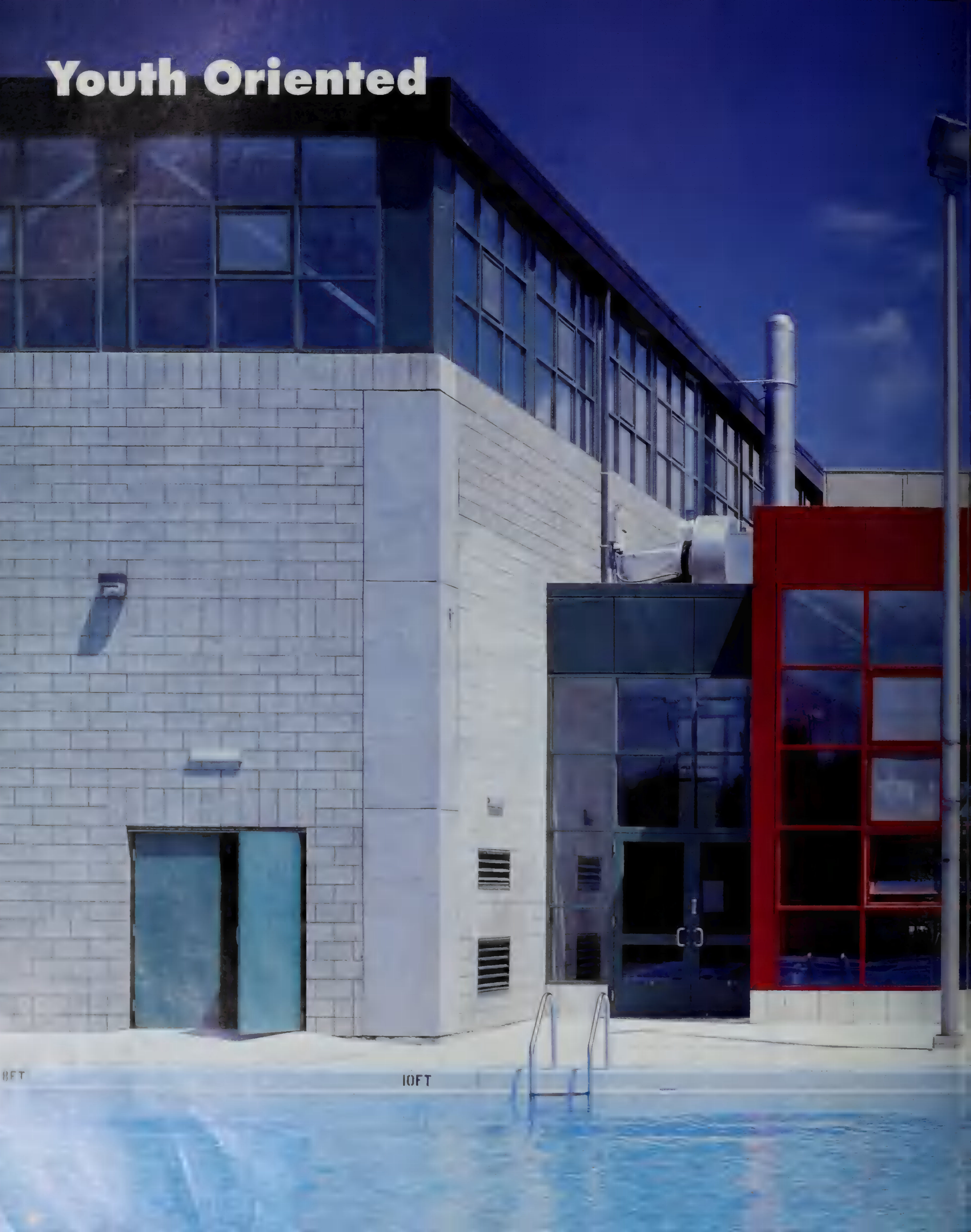
[illegible] M WINDOW SHADES


acoustical deck
thermal and acoustical insulation secured [illegible] MDO, and painted black
1x6 cedar planks screwed to angles
3 FT
1 M

NOISE CONTROL DETAIL IN GYMNASIUM

Credits
Irvington Community Center
Fremont, California
Owner: *City of Fremont*
Architect: *ELS/Elbasani & Logan Architects—Donn Logan, principal-in-charge; David Petta, Clarence Mamuyac, Jr., Karen Tham, design team*
Interior Designer: *ELS/ Elbasani & Logan Architects*
Engineers: *E.G. Hirsch & Associates (structural); MCT Engineers (electrical and mechanical); G.T. Kuntz Consulting Engineer (civil)*
Consultants: *ZAC Landscape Architect; Stephanie McAllister Landscape Architect (landscape); Becca Foster Lighting Design (lighting); John Raeber (specifications)*

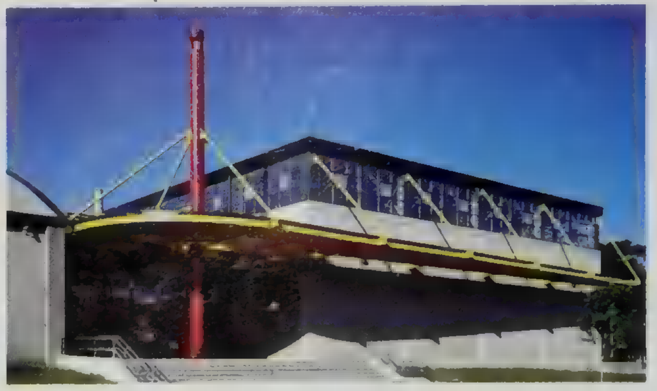
Youth Oriented

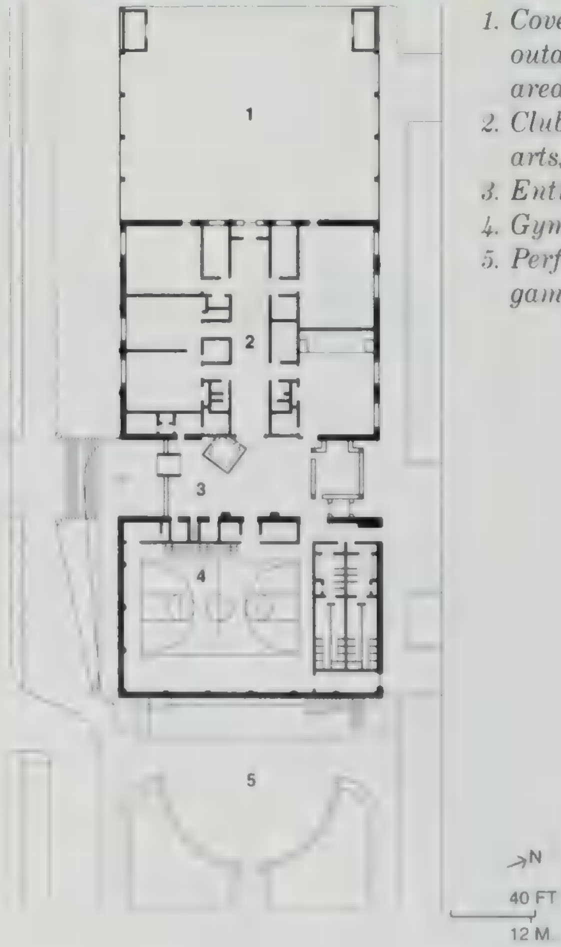


A team of architects helps the Boys and Girls Clubs of Boston provide a safe haven for kids.

George Robert White Youth Development Center
Boston
Leers Weinzapfel Associates, Architect
Chisholm Washington Associates, Associate Architect

© Chuck Choi photos





1. *Covered outdoor play area*
2. *Club rooms, arts, library*
3. *Entry*
4. *Gym*
5. *Performance, games*

The architects transformed an unused ice-hockey rink into a new facility for the Boys and Girls Clubs of Boston, incorporating an outdoor pool into their design. Using existing foundations for the concrete-block gym, they [illegible] a new entry in place of [illegible] bays of the former rink. The rink's [illegible] [illegible] at the west end, a [illegible] play area.

A vastly under-served community," is how Frances Moseley, president and CEO of Boys and Girls Clubs of Boston, characterized the availability of youth programs in the city's Blue Hill section prior to the opening of her new facility. A review of the attendance rates for the George Robert White Youth Development Center since it opened in June, 1995, would support her claim: 1,700 kids, from 6 to 18 years old, enrolled in the first quarter alone—more than had been anticipated for the entire year. After less than a year of operation, the facility is looking to expand. How much of that success is due to the building itself? "A lot," says Moseley. "It has surpassed our every goal."

For architect Andrea Leers, the project's main goal was "to create an energetic, exciting community magnet." While her agenda was straightforward, the prospect of a three-headed, public-private client—the George Robert White Trust gave money to the Boys and Girls Club, a non-profit which runs the facility, while the city's Public Facilities Department administered the architect-selection process and construction—was anything but. What's more, in order to meet minority participation requirements, Leers Weinzapfel, inexperienced in associations, was required to partner with another Boston-based firm. Leers selected Chisholm Washington Associates. Over time, an arranged marriage blossomed into a true partnership. Micheal Washington, who already had worked in the community, ran a series of public meetings to determine a program and obtain consensus.

Located between two housing projects with opposing gangs, the site had been a place of confrontation. With an abandoned ice-hockey rink and an outdoor pool already present, the architects chose to literally build on givens rather than create the appearance of waste by razing what was there and starting over. Part of the rink was demolished to make an entry foyer, signaled from two sides of the corner lot by the bright yellow metal canopy and punctuated by a red mast/light fixture meant, says Leers, to be "a beacon" to the economically depressed community. A concrete block gym was built atop existing foundations; an art studio, library, teen lounge, and other game rooms were inserted beneath the bowstring trusses of the rink in bright boxes ("world beat colors," says Leers); and four bays of the rink were left open and wrapped with hurricane fence to create an enclosed play area.

"An imposing structure speaks to solidity, stability, both of which this neighborhood doesn't have," says Moseley of the result. While it is one of only five of the some 1,100 Boys and Girls Clubs around the country to have a metal detector at the door (at the request of the kids), Moseley says it's only a matter of time before this community accepts the Boys and Girls Club tradition as safe haven.

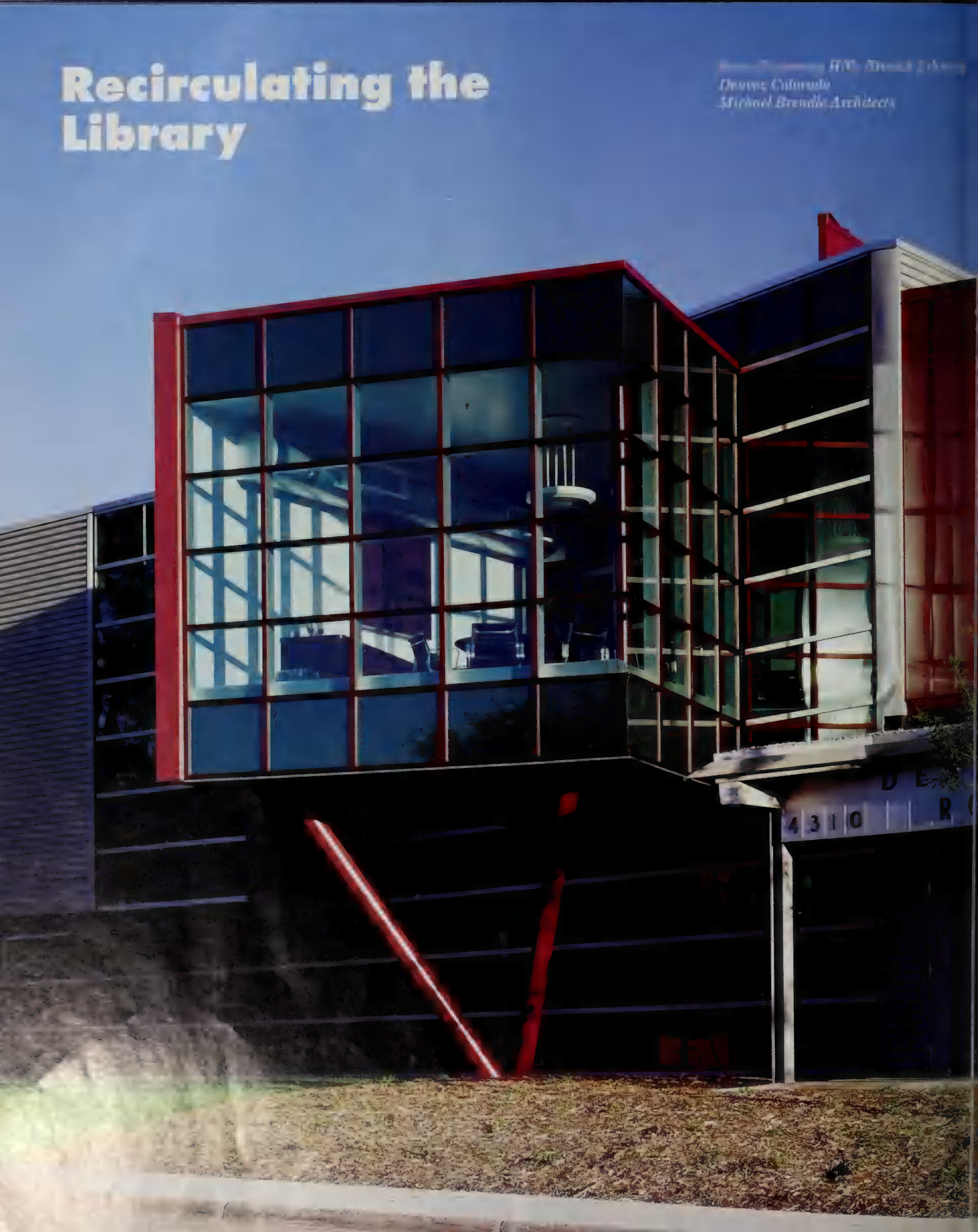
Karen D. Stein

Credits
Robert White Youth Development Center, Boston
Owner: *City of Boston*
Architect: *Leers Weinzapfel Associates—Andrea Leers, principal-in-charge; Jane Weinzapfel, consulting principal; Josiah Stevenson, project manager/project architect; Jim Vogel, project manager/construction*
Associate Architect: *Chisholm Washington Associates—Micheal Washington, principal-in-charge; Nick Safina, designer*
Engineers: *LeMessurier Consultants (structural); TMP Consulting Engineers (mechanical/plumbing/electrical); Green International (civil*
Consultant: *Mary Smith Associates (landscape)*
General Contractor: *Boston Building & Bridge Corp.*

Continuing Education
For learning objectives and instructions, turn to page 65.

Recirculating the Library

[illegible] Hills Branch Library
Denver, Colorado
Michael Brendle Architects



ost community libraries circulate far fewer than the 50,000 books a month that Ross-University Hills Library, Denver's largest branch, checks out to its members. The building committee overseeing a major renovation and expansion said it wanted a straightforward functional facility. But Michael Brendle Architects' somewhat startling result turned out to be much more. "It comes on you as a surprise in its location," says Brendle, in an understatement. On three sides, the new building nestles into a compact residential neighborhood and, on its fourth side, it faces a shopping mall across a major street to the north. At every step during design, Brendle and his project team offered the building committee choices. "The committee [comprising members from the library staff, the head branch-library staff for all Denver, and the department's project management group] always chose the most aggressive alternative," reports Brendle.

Of course, the committee knew it would be getting more than basic design from this building's architects. It had already commissioned the firm to design another Denver branch library in an affluent neighborhood, a design that provoked early criticism over its industrial esthetic, criticism later giving way to praise. (All of Denver's libraries are the beneficiaries of a massive public commitment in bonds intended to make its system pre-eminent.)

The original 1963 building (right in site plan) had become so inadequate that the majority of stacks were sequestered in the basement. The old building was gloomy. The eye rose past exposed glue-lam beams to acoustic tiles and glaring fluorescent fixtures applied directly to the underside of the sloping shed roof. The new program called for all stacks to be publicly accessible on the main floor. In addition, the facility needed greatly increased staff offices and meeting rooms, a new children's library, community meeting room, wiring for electronic communications, and a climate-control system. All basic library operations, including circulation, were to occur on one unbroken level, the organization of the building to be clear, and spaces to be bright, spacious, and inviting to users.

Among challenges the architects faced was a steep upward grade change to the south, which effectively blocked expansion on the existing floor level in that direction. Instead they built on the original parking lot to the east, leaving the corner portion as landscaped "breathing space." Brendle's team members' design called for demolition of 20 percent of the original structure toward the planned new wing (left in plan, following page). This allowed a clear central circulation axis, emphasized by its skylit two-story height. To the right as one enters from the parking lot is a new children's wing, behind an office and staff workroom. More space was gained when Brendle's team placed the conference and community rooms on the new second floor. To the left, in the original building, the bulk of the stacks fill the central space. The ceiling has been dropped to conceal new mechanical equipment, including a variable-flow warm-air heating system that supplies zones as needed through thermostatically controlled mixing boxes. Lights are now directly above the stacks for better views of books with less wattage required. The whole north wall was turned into glass that brings daylight to perimeter reading areas.

Structurally, the addition's means are simple and economical—steel frame and deck. The only theatrics are in the standard system's angled and stepped configuration and, of course, that pop-out conference room on the second floor, held in place by a V-shaped strut (opposite and top right). *Charles K. Hoyt*

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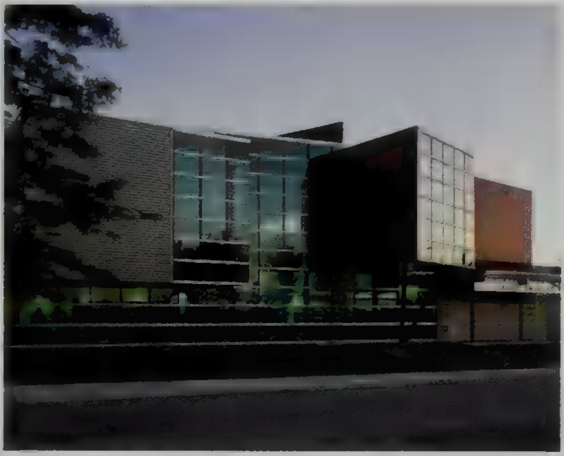
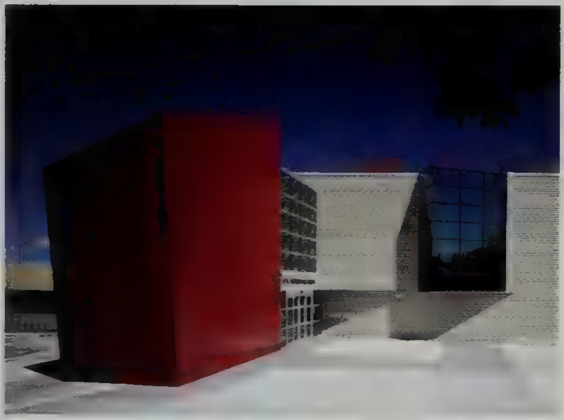
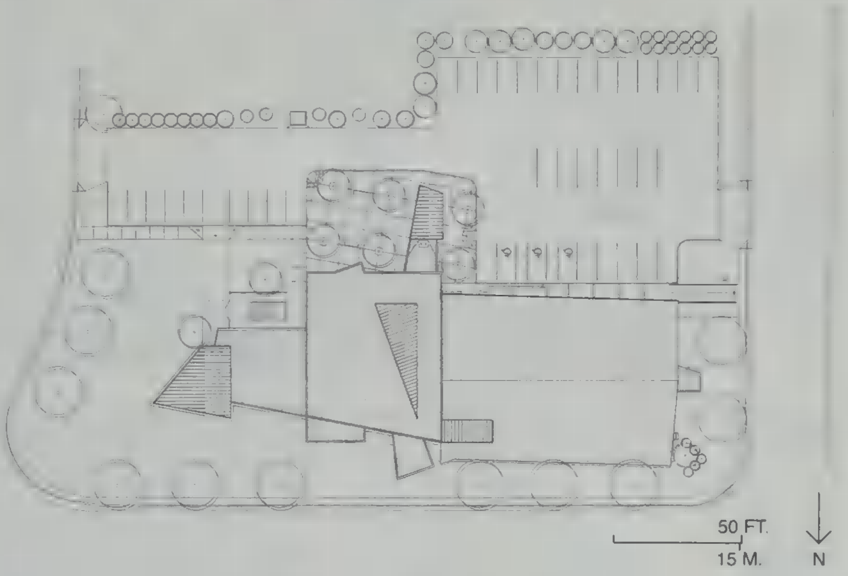
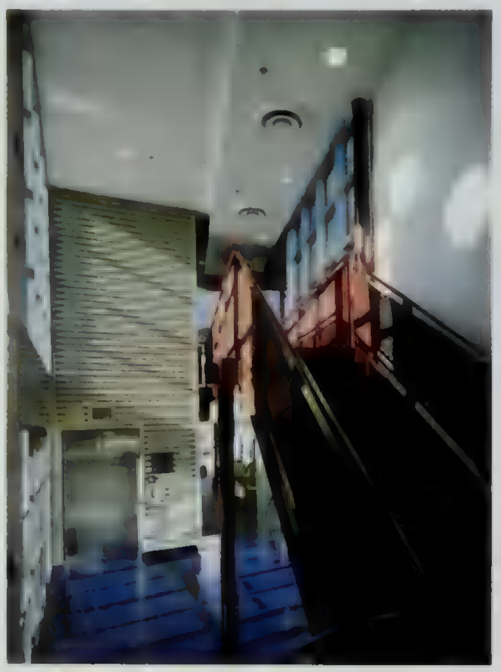






To emphasize the desired sculptural liveliness of the exterior, the architects designed geometric volumes that use two types of insulated metal-panel wall systems—a tan-colored tubular panel with a strong horizontal pattern and a flat red-colored panel. They further emphasized horizontals by detailing the window walls with bright silver horizontal rails and black vertical mullions.

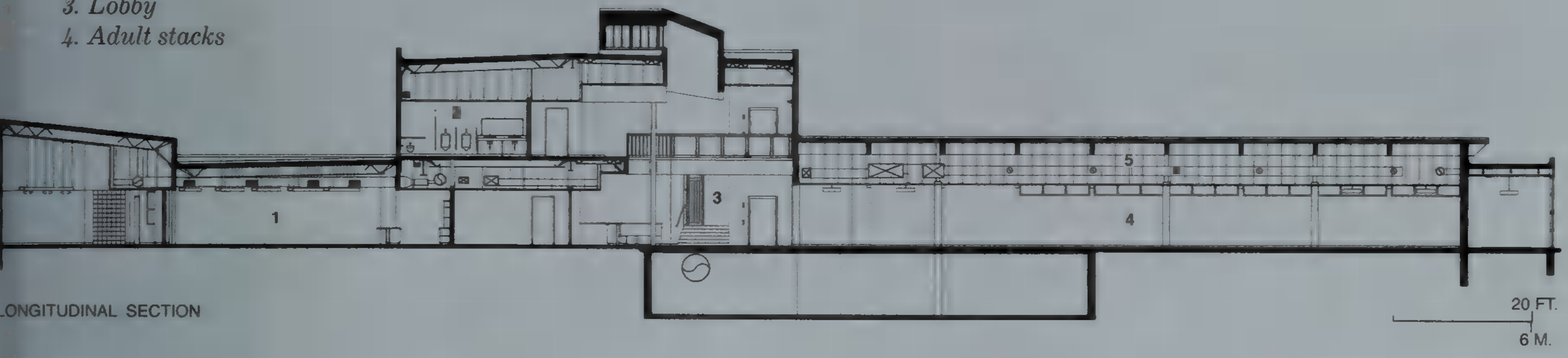


Ross-University Hills Branch Library's use has doubled since Michael Brendle Architects completed its $1.9-million renovation and addition. It includes 12 electronic work stations dedicated to public use and a totally computerized card-catalog system. Automated communications give the branch virtually all capabilities of the main library, including delivery of any book available in Denver's system to local users within hours.

On the branch's main floor, the only interior change of levels occurs at the parking-lot-entrance vestibule to the south (bottom right), where handicapped visitors can take an elevator down half a flight (north-south section opposite) or up to the conference and community rooms. The projecting vestibule not only invites users in, but its location outside the body of the building allows closing off the main part of the library when the community facilities are used at night. The dark interior of the original building has been greatly brightened by the new two-story main lobby (bottom left and sections), which reaches up to bring daylight deep inside the surrounding floor space through skylights and clerestories. Stacks, previously located in the basement, now occupy the central part of the floor away from new windows, which are now devoted to readers' enjoyment of outside views from perimeter reading areas.

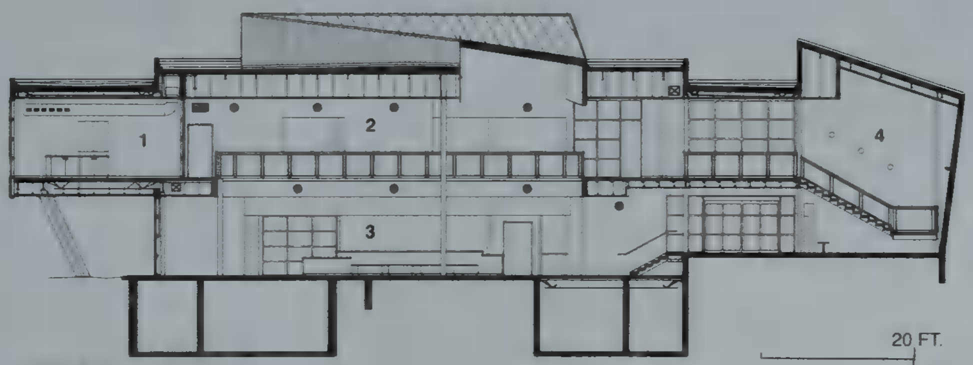
Credits
Ross-University Hills Branch Library
Denver, Colorado
Architect and Interior Designer: *Michael Brendle Architects—J. Michael Brendle, principal-in-charge, project designer; James L. Bazzanella, project architect; Thomas L. Groves, Robert Biesk (project team); Linda Purcell (model maker)*
Engineers: *The Sheflin Group, Inc. (structural); Abeyta Engineering Consultants, Inc. (mechanical); Gordon Gumeson and Associates, Inc. (electrical); S. A. Miro, Inc. (civil)*
Consultants: *Land Mark Design, Inc. (landscape); Architectural Resource Consultants, Inc. (costs); David L. Adams, Inc. (acoustics)*
General Contractor: *FCC Construction, Inc.*

1. *Children*
2. *Community*
3. *Lobby*
4. *Adult stacks*



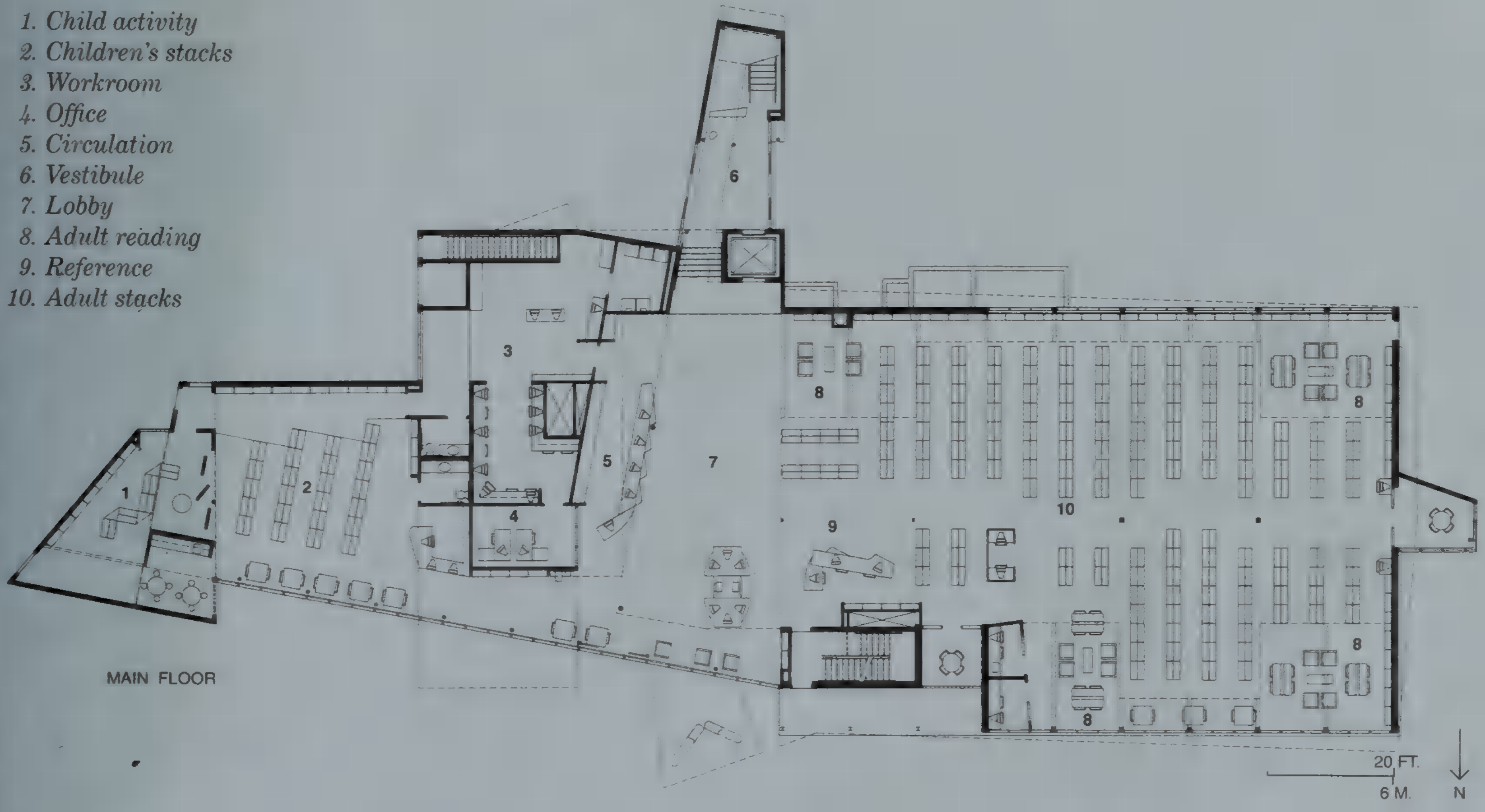
ONGITUDINAL SECTION

1. *Conference room*
2. *Balcony corridor*
3. *Lobby*
4. *South vestibule*



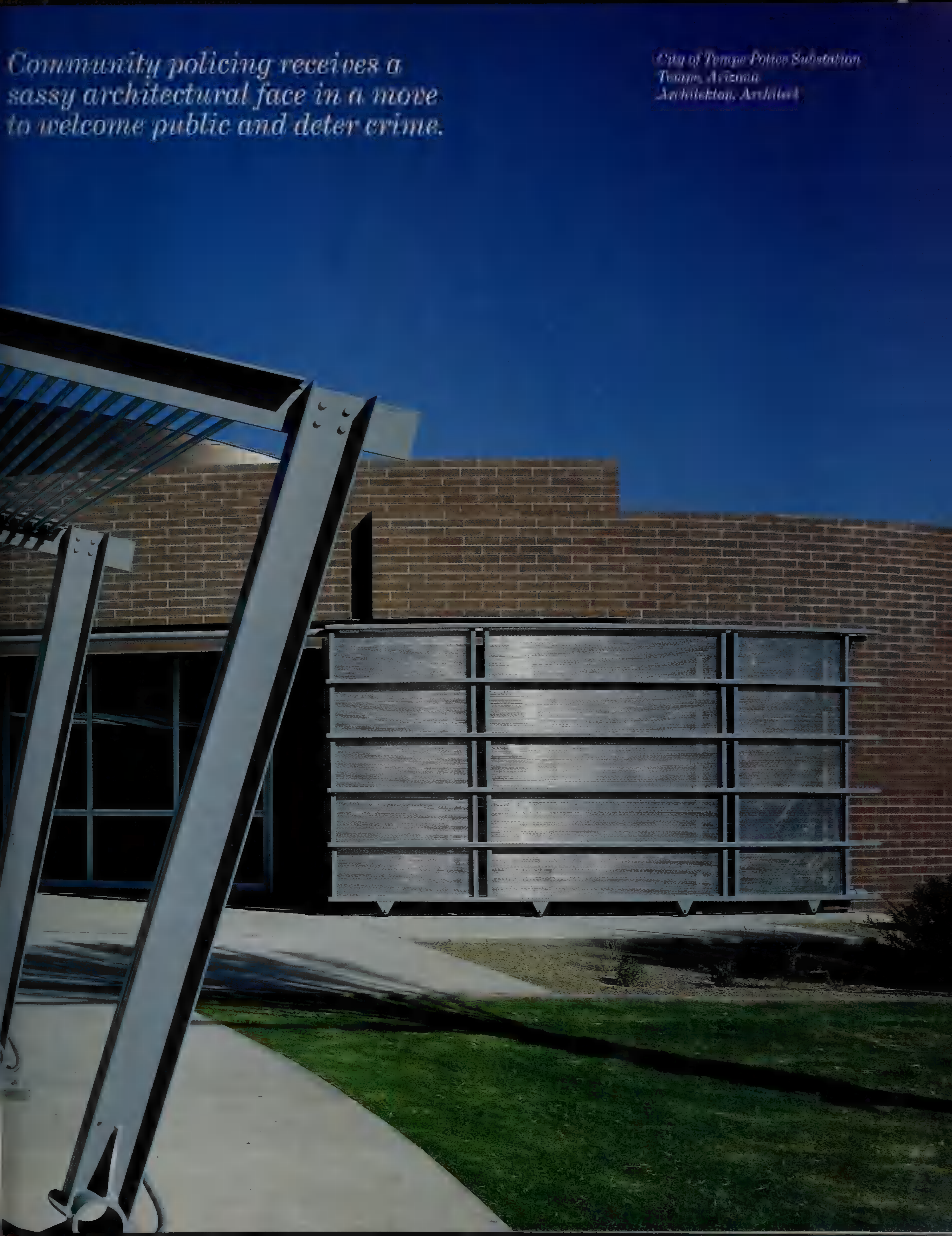
TRANSVERSE SECTION

1. *Child activity*
2. *Children's stacks*
3. *Workroom*
4. *Office*
5. *Circulation*
6. *Vestibule*
7. *Lobby*
8. *Adult reading*
9. *Reference*
10. *Adult stacks*



MAIN FLOOR

With Open Arms



Community policing receives a sassy architectural face in a move to welcome public and deter crime.

City of Tempe Police Substation
Tempe, Arizona
Architekton, Architect

The police have not had a good press in recent years. Broadcasts of televised sequences of patrolmen beating up citizens, and court testimony hinting at the institutionalized practice of police violence, have created a police profile which is certainly not typical though it plays well on television. In part to offset this image and in part because of its real promise to cut crime, there has entered the vocabulary the concept of community policing. It's based on sending the police into the community and the community into the police station.

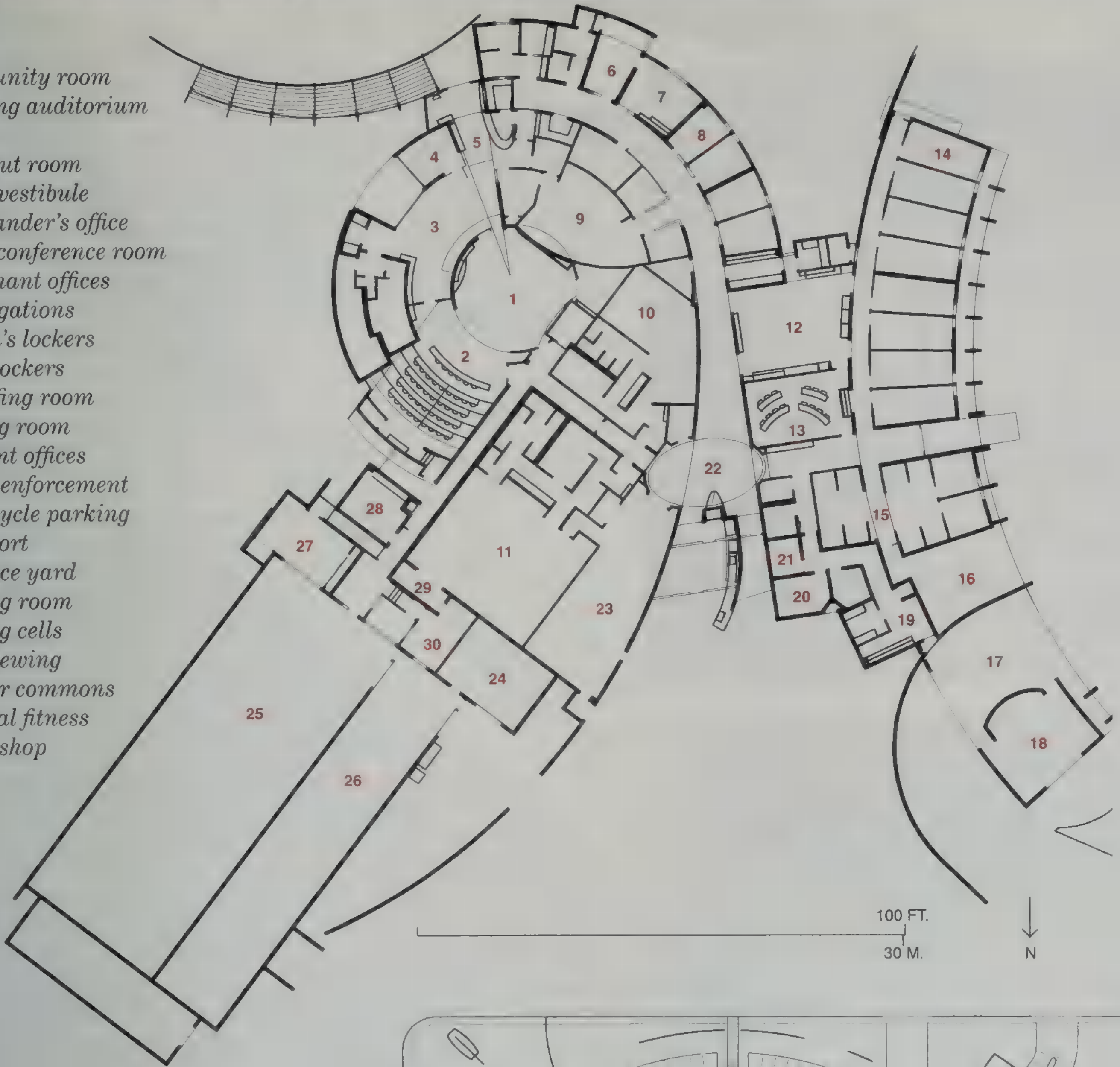
Other architectural types too have reconsidered their public face. Banks, for one, pushed along by pressures to popularize their image, have long shed their Ionic columns in favor of drive-ins, and cashiers have been replaced by the ATM. By contrast, courthouses, another building type with a tradition of grandeur, are at every level hanging on tight to stern dignity, as recently published projects show [RECORD, March 1996, pages 100-103].

The Tempe Police Substation strikes a brilliant balance between those two extremes. A suave, 28,000-square foot, $4.2-million horizontal assemblage of simple forms and prosaic materials used with great élan, the structure has as its symbolic center the circular community room, expressed on the outside by a truncated cone faced with copper panels (previous page and below). (A slightly macabre touch was introduced by the use of spent aluminum shell casings from the practice range as fasteners for the panels).

The parti is simple; its execution less so. If you draw a diagonal across the plan, the spaces above it, open and accessible, are for the public. The spaces below it house record, detention, and training functions, and are secure. The curvilinear plan seems forced until one arrives on the site and confirms the logic of it. "At the center of the building's concentric layering," says Architekton partner John Kane, "is the symbolic space or community room. Complementing the public component, the facility diverges into complete patrol functions, holding areas, and a shooting range. A curving, daylit circulation spline [helps link] the primary internal components." The patrol operations, which face outwards, are organized along a kind of unfurling arced corridor (see photo, last page of story). This tangential wing is then bridged back to the primary circulation by the briefing and debriefing rooms (items 12 and 13 on floor plan).

The material palette is in subtle tension with the bright blue sky and harsh southwestern daylight. It comprises integrally colored masonry units (the coloring is so realistic that the units actually read as large Norman bricks) and cast-in-place concrete, plus copper, steel, aluminum, and glass. Shrewdly applied, glazing captures views and reinforces sightlines. Two special features add a quirky touch. The idiosyncratic pergola that marks the public's entrance (previous page) is made of standard rolled-steel sections and topped by parallel lengths of electric raceway that cast an intriguing moving shadow. The item has become the kind of fun feature that helps endear the structure to the community. More subdued but more ingenious, the rolling grille (previous page, at right) borders a meeting room, and moves on a set of casters. Seen here in the open position, it rolls to the left to enclose the room for solar control and security.

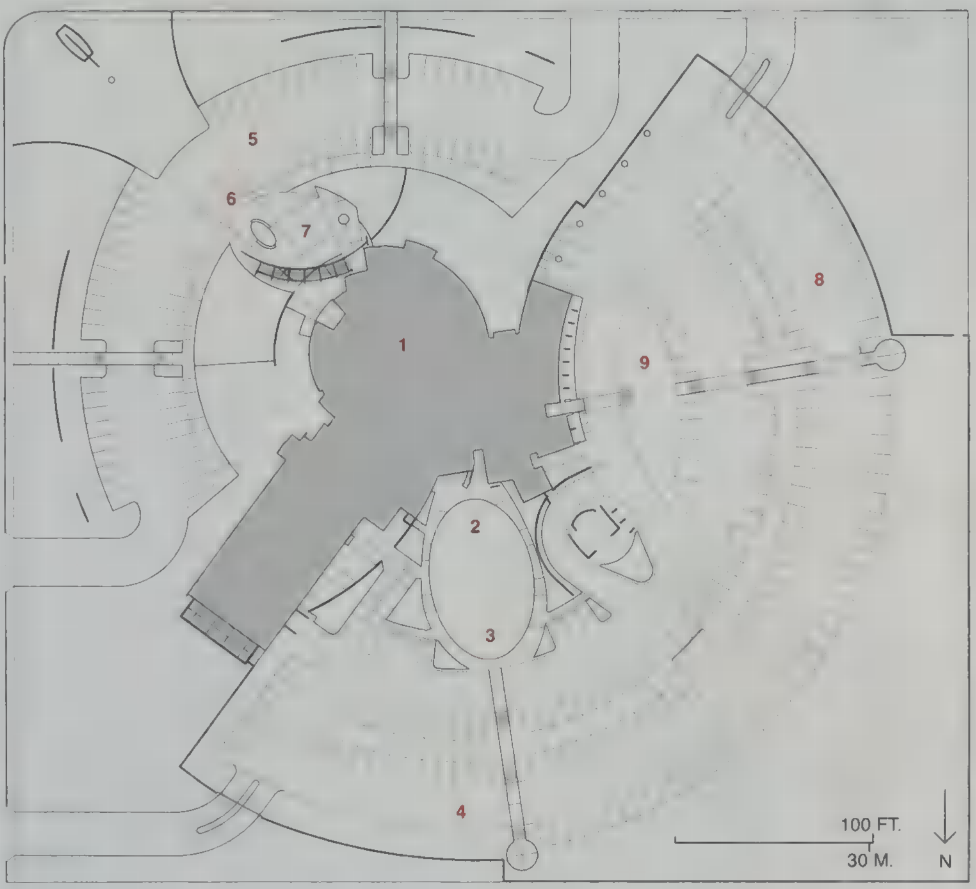
The public gave the building thumbs-up (Says former commander and now Schaumburg, Illinois, police chief Jim Palmer: "Citizens come into a business, not a law-enforcement environment"). The police took longer. "They thought at first it was weird," says station commander Martha Burkett." Everything they had ever seen before was somehow boxy. But they came around." *Stephen A. Kliment*



1. *Community room*
2. *Training auditorium*
3. *Lobby*
4. *Breakout room*
5. *Public vestibule*
6. *Commander's office*
7. *Patrol conference room*
8. *Lieutenant offices*
9. *Investigations*
10. *Women's lockers*
11. *Men's lockers*
12. *Debriefing room*
13. *Briefing room*
14. *Sergeant offices*
15. *Traffic enforcement*
16. *Motorcycle parking*
17. *Sally port*
18. *Evidence yard*
19. *Booking room*
20. *Holding cells*
21. *Interviewing*
22. *Interior commons*
23. *Physical fitness*
24. *Range shop*
25. *Tactical firing range*
26. *Static range*
27. *Firearm training simulator room*
28. *Gun cleaning*
29. *Armory*
30. *Rangemaster*

The public-entry vestibule (5) and the police commons (22) are at opposite ends of the curved glass-topped internal thoroughfare. Visitors see the long facade from the parking lot (opposite, bottom photo). Employees' social area is on opposite left photo; rolling grille and practice range are on opposite right photo.

To adequately fill the cast-in-place concrete forms, plasticizers were added to the mix. Even after vibrating the forms, there was some honeycombing, so a light slurry coat was added to obtain acceptable quality without tearing down the work. The form holes were partially plugged to obtain a more monolithic look.

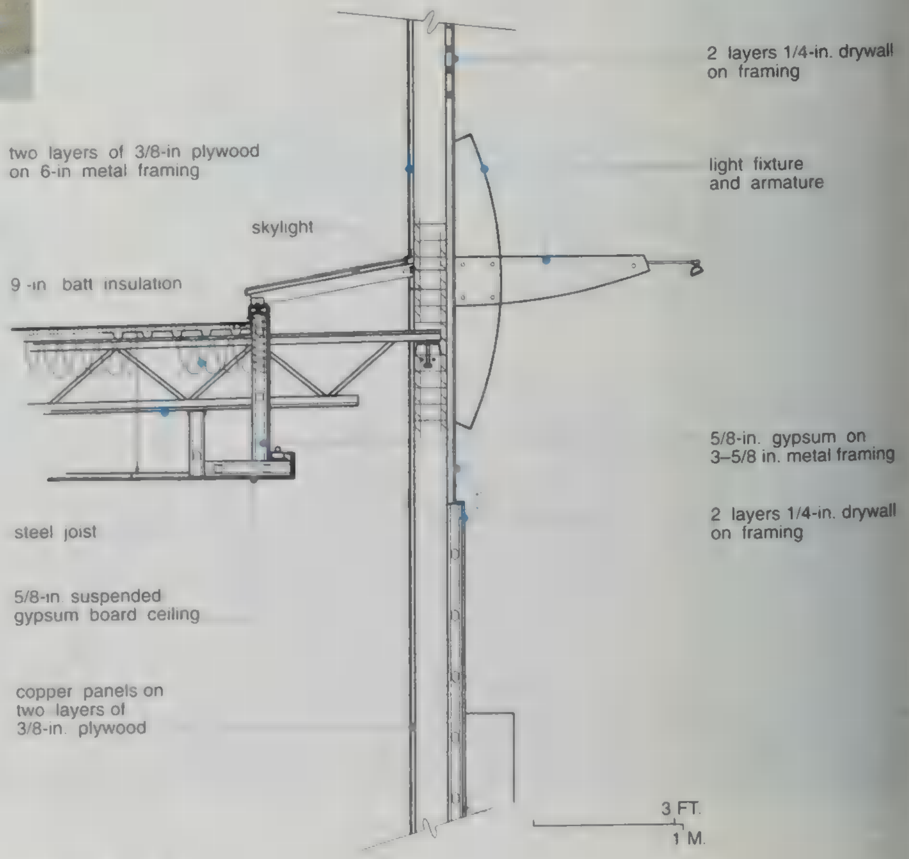


1. *Main building*
2. *Employee entry*
3. *Exterior commons*
4. *Employee parking*
5. *Public parking*
6. *Public entry*
7. *Public plaza*
8. *Patrol parking*
9. *Patrol entry*

Continuing Education
For learning objectives and instructions, turn to page 65.

The training auditorium (above left) seats 60 and looks down on the community room. The two can be separated by movable walls. The round shape of the community room, its reflective surfaces and background electric hum, make for mediocre acoustics. The public-entry vestibule leads to the copper-clad community room (bottom left). Public and police spaces are connected by a glass-topped curved atrium. (opposite page).

Credits
City of Tempe Police Substation
Tempe, Arizona
Architect: *Architekton—Douglas R. Brown, principal-in-charge; John F. Kane, principal and design lead; Robert Briggs, Stephen Jaycox, Tessa Jones, Charles Nissen, project team*
Engineers: *Drottar Priniski & Associates (structural); Tesco Engineering (mechanical); Lutz Engineering (electrical); Allen Consultant Engineers (civil).*
Consultants: *Morse Landscape Architect (landscape architect); Towne-Kleinschmidt (furnishings).*
General Contractor:
Sun Eagle Corporation


two layers of 3/8-in plywood on 6-in metal framing
skylight
9-in batt insulation
steel joist
5/8-in suspended gypsum board ceiling
copper panels on two layers of 3/8-in. plywood
2 layers 1/4-in. drywall on framing
light fixture and armature
5/8-in. gypsum on 3-5/8 in. metal framing
2 layers 1/4-in. drywall on framing
3 FT.
1 M.

SKYLIGHT DETAIL

Focus on: Creating Communities

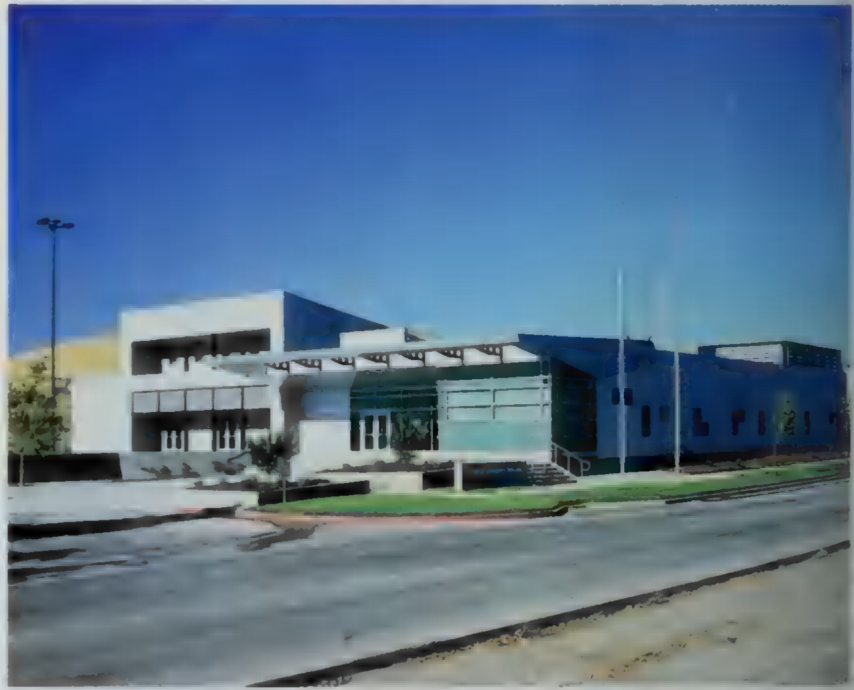
The projects on these pages not only serve communities. Each in its own way helps to create the essence of community—togetherness. Alameda's emergency-control facility provides residents shaken by natural disasters with a reassuring mutual place of refuge. Mid-Valley's library gives a sense of place where there was none. The Tonnelle Avenue Firehouse creates a new model for symbiotic urban planning. McConnell Air Force Base's community center brings together people from previously scattered locations for social interaction. And the Fleetwood Civic Center unites activities of diverse town residents. Charles K. Hoyt

---

Emergency Operations Center

Alameda County, California
Michael Ross & Charles Drulis, Architect

Most days, Alameda County uses this $7.9-million, 25,638-square-foot facility as a training and conference center for the county sheriff's Office of Emergency Services and for public functions and meetings. Hence the interior—built around an interior courtyard—is brightly daylit. During emergencies, however, the facility becomes a highly secure three-part operations center. Communications and management systems developed after the Loma Prieta Earthquake come into play. The sheriff takes control of his command center in the rear portion of the building; the large multipurpose room (left in photo) becomes a staff and evacuee shelter, and the normally public spaces (right in photo) can be sealed off. The strongly braced steel structure is designed to withstand the maximum credible seismic stress, and electronic and life-function systems are supported by dual generators.



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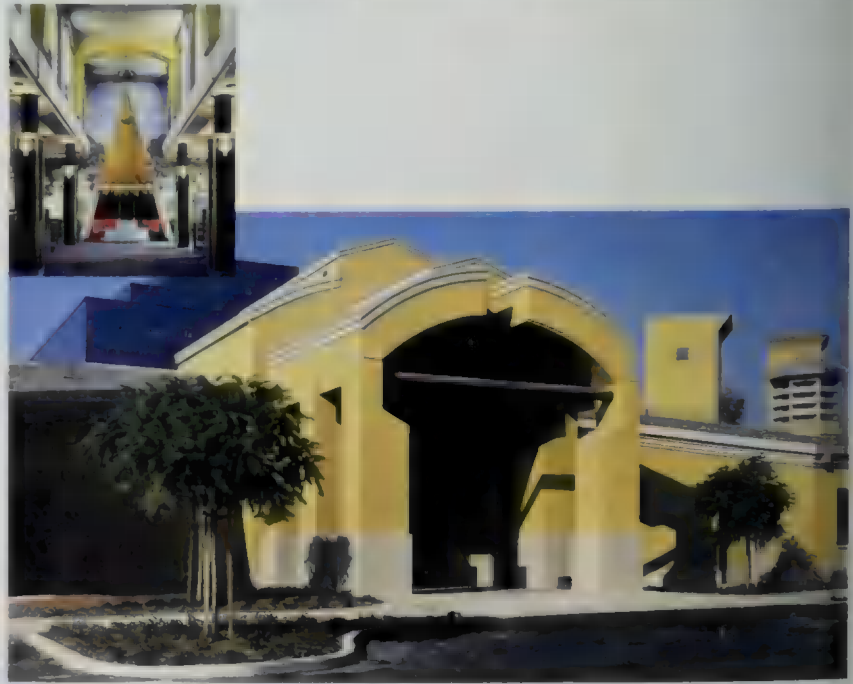
Mid-Valley Regional Library

Los Angeles, California
Killefer Flammang Purtill Architects

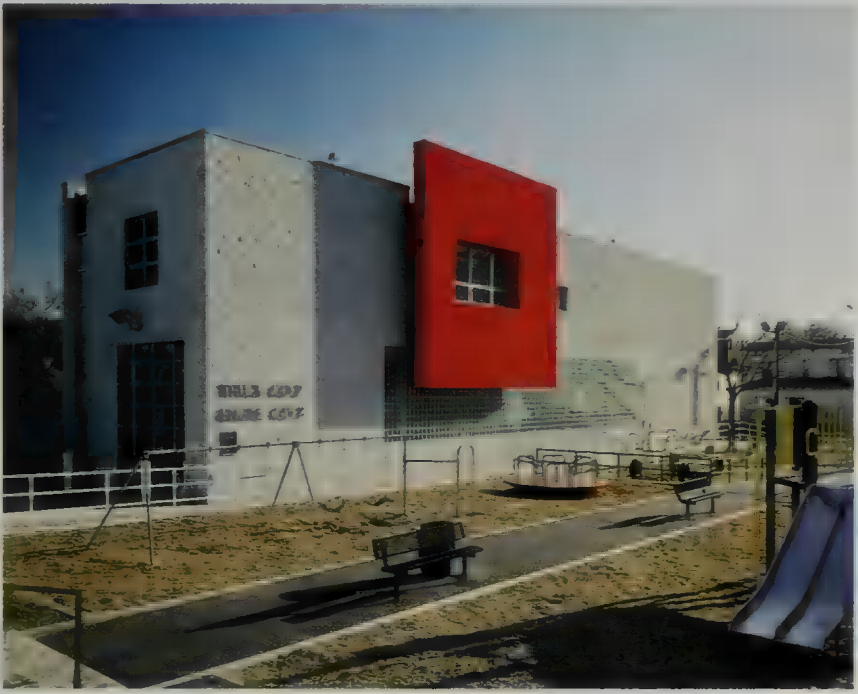
The architects were called on to create a strong civic presence for a suburban community that had previously lacked focus. The resulting 28,000-square-foot building gains a suitably monumental scale by the large size of its various elements, including the main entrance (right), a tall pyramidal roof over the lobby, and a landmark clock tower (right of entrance). The length of the building is perpendicular to the main street to allow motorists' appreciation and surveillance of a park at the back of the site. The architects met a limited budget by choosing an economical steel-frame structure and a stucco finish. A low band of [illegible] wall panels makes a suitably monumental base. Interior [illegible] include a children's library (inset) enhanced by a tepee [illegible] seating and a storyteller's throne. The building [illegible] the local library system's regional headquarters.



Tonnelle Avenue Firehouse

North Bergen, New Jersey
Dean Marchetto & Associates, Architect

Occupying a sliver of land 200-feet-long by only 25-feet-wide, architect Dean Marchetto's economical steel-frame fire house serves a dual purpose. First, it houses two fire engines that enter and exit through overhead glazed doors at either end. The firefighters occupy the floor above and reach their respective vehicles by two direct stairs located for speedy access, replacing the traditional slide-down pole. The second role of the facility is to be a friendly neighbor to an adjacent playground. A glass-block window in the split concrete-block wall facing this open space gives youngsters an entertaining view of the apparatus within, while a red "eye" above—in reality, a window in the projecting tile wall of the firehouse kitchen-dining area—keeps watch over their welfare. The obvious symbiotic nature of the two facilities together creates a welcome model for future community development.



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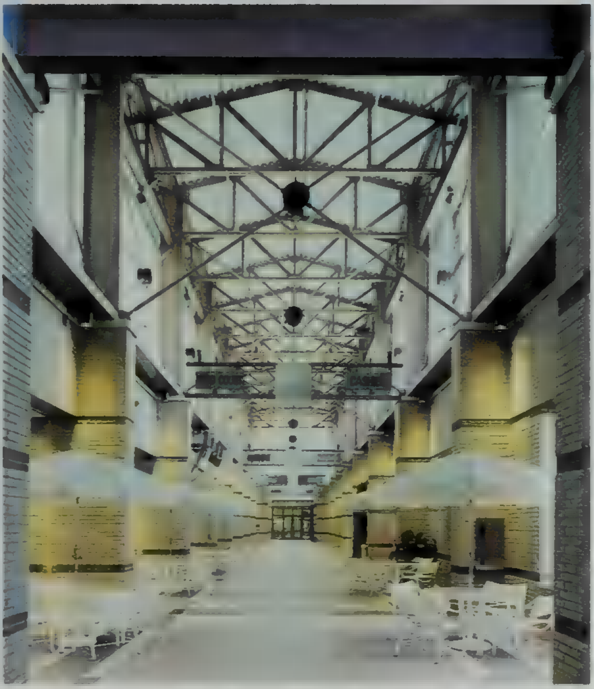
Emerald City Center

McConnell Air Force Base, Kansas
Gossen Livingston, Architect

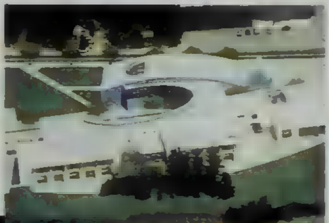
Destruction of the base's scattered facilities in a 1991 tornado gave architect Gossen Livingston the opportunity to reinforce community spirit by uniting all recreational functions in one large complex at the site's center. The connecting spine is an airy central indoor mall (right). Athletic uses anchor either end. These include a gymnasium, large indoor swimming pool, and the "Tornado Alley" bowling lanes. Between them, restaurants, bars, and the "Emerald City Ballroom" surround a large kitchen. The ballroom doors and fast-food eateries, including "The Rendezvous Food Court," face the mall. On the outer side of the kitchen, facing perimeter windows, more-formal dining rooms look out over an adjacent golf course. The long-span steel structure is exposed in many areas. In relaxation spaces, it is screened by suspended wire-mesh arches pierced by down lights.

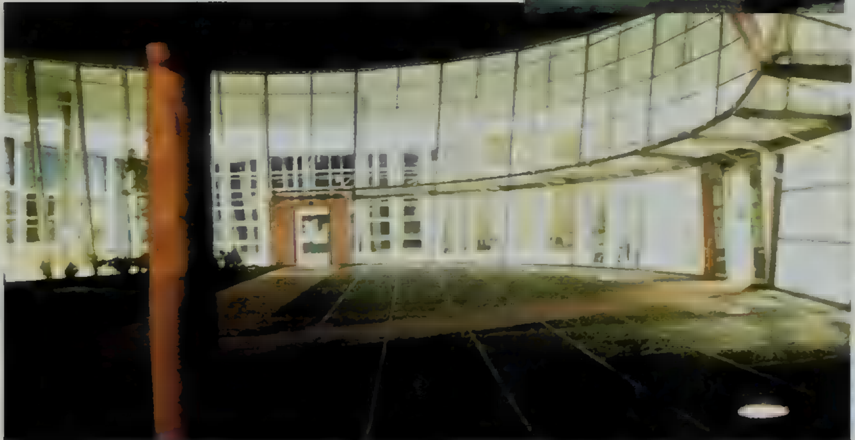


Fleetwood Civic Center

Surrey, British Columbia
IBI Group, Architects

For a village outside Vancouver, British Columbia, this civic center combines under one roof a library, seniors' gathering place, and multi-purpose spaces for social events and exhibits, assuring comfortable passage between components when the weather is rainy or grey. The 40,000 square-foot center is spread out around an oval courtyard (right), where ample glazing brings in precious daylight and promotes visual contact between varied functions. Design architect Paul Zajfen reduced the resulting large building mass's impact on the surround-ng neighborhood by creating several distinct parts, including a welcoming house-like pavilion containing the library entrance. Part of the local success of the $6-million project is due to the future users' major participation at each step of design development.





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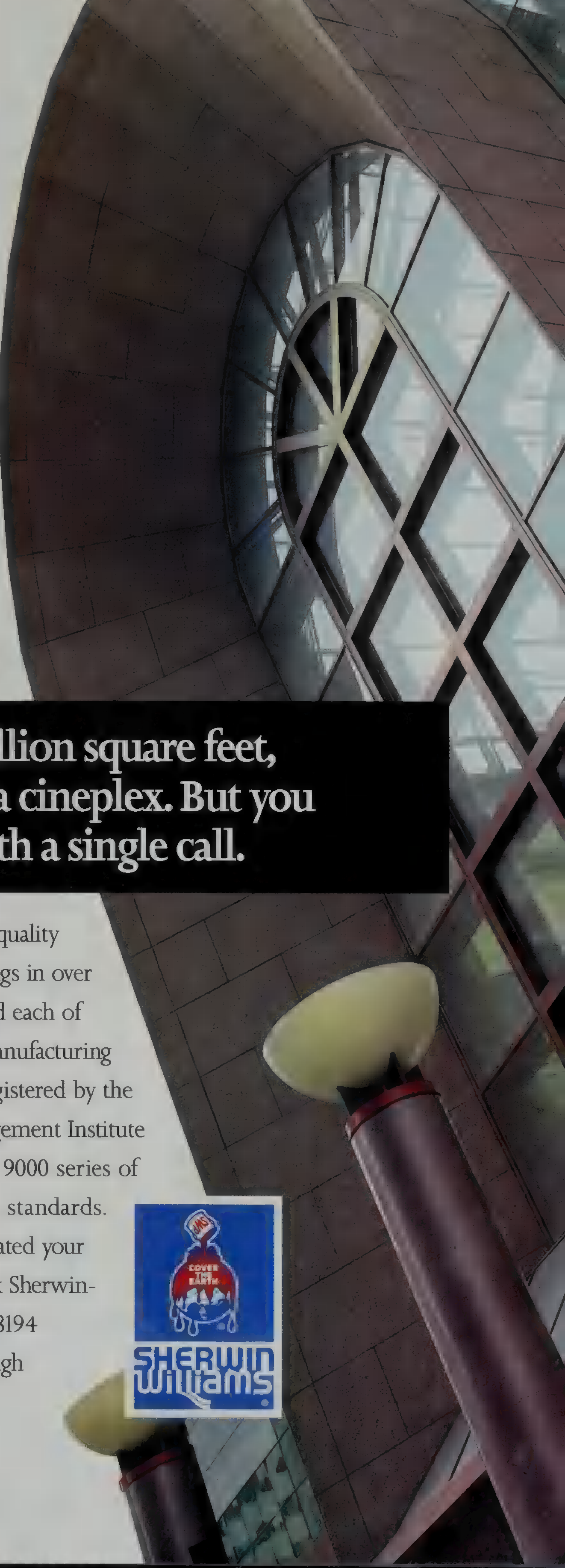

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Awards Commentary

Continued from page 51

new sports stadium caused Tom Hanrahan to exclaim, "This is demented! It presents a sports stadium as an extension of the living room, an extension of the TV set. It denies structure and material, presenting the building as abstract bands of color instead of surfaces."

The jurors found entries prepared by third-party video-production services least successful. These entries were more likely to contain inappropriate soundtrack music and heavy-handed special effects. Too many used camera angles and cinematographic gimmicks to obscure rather than explain a project. Most had a computerized sameness akin to the standard acrylic renderings favored by developers.

Jurors rewarded animations that conveyed information that would not be possible in physical models or in print. One second-prize winner, "The Amiens Project," used computer animation to convey the proportioning, contruction, and structural concepts embodied in the 13th-century Gothic cathedral. The First Prize Winner, "Logic Error" by Paul Q. Davis, isn't a presentation of an actual proposed project, but an evocation of an architectural idea through the use of computer-generated animation. Much like a no-holds-barred MTV video, it pulsates with visual and audio stimuli. While the entry does not represent the way a typical firm would present itself to a corporate board of directors, the jury acknowledged the use of the computer's unique powers. Davis made architecture that is unbuildable, not even very comprehensible, but which might feed inspiration back to the realm of actual architectural design.

The appropriateness of realism

Though it didn't win a prize, jurors discussed at length the merits of a computer-generated tour of a lab by HOK. It lacked artistic pretension, and was successful simply because it conveyed by the most realistic means possible the precise arrangement and feel of the rooms to users, who probably find reading plans difficult. Lighting and effects skillfully softened the hard-edged look common in animations. As Hanrahan noted, "you are really brought in to touch and see." Too many other animated entries, though superficially dramatic and apparently realistic, "fly" the viewer through projects without making the spaces and sequences understandable.

There were many student entries, the most successful of which was an honorable mention design by Darius Kuzmickas, of the University of Utah. Kuzmickas' prepared an animation of his masters' thesis, showing the surrounding site and context. He gave the project a careful, slow, approach and walk-through, showing its development and spatial relationships. As Tucker Viemeister noted, "It's like being within a live TV show. It's explanatory."

The "gee whiz" look of the computer imaging we now see all around us may have created a "techno-expectancy." What this means is that jurors with little first-hand knowledge of what the technology can do presume that the possibilities are unlimited. They do not know exactly what to expect, but when confronted with real-life examples, they are disappointed. I agree with jurors who criticized entries where hyped effects replaced substance, but they also seem to have fallen prey to visual hype in the selection of some of the prizes. While jurors seemed turned off by the evident salesmanship of some images, selling an idea is exactly the point of any architectural presentation, whether generated by sable brush or ink-jet printer. ■

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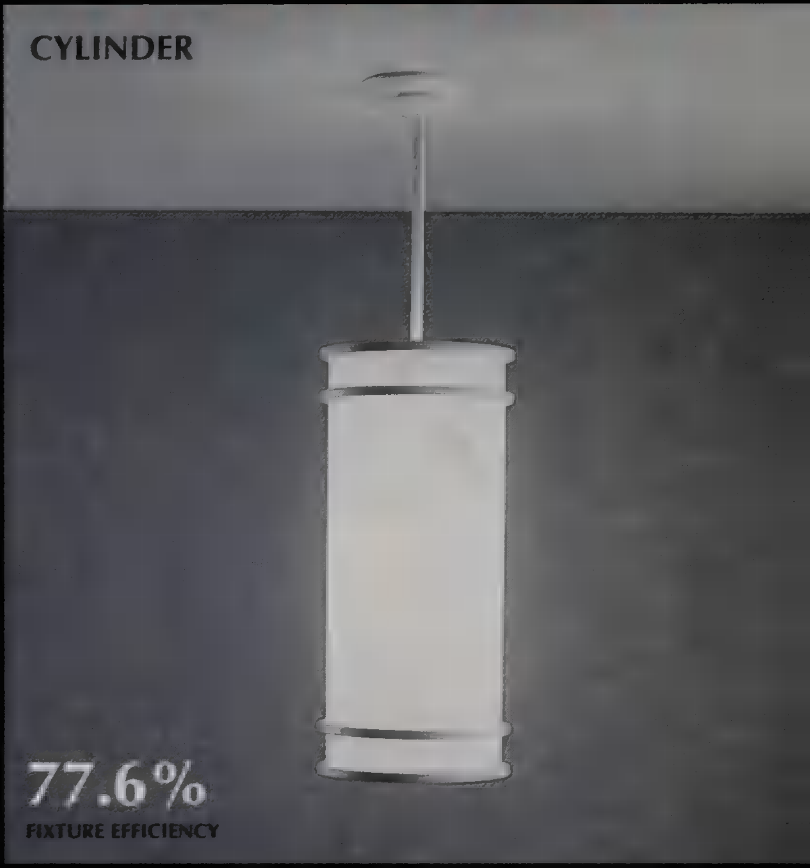

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Health care *continued from page 43*

facilities to lower-overhead settings for the elderly. By the year 2000, 25 percent of beds will be continuing- and extended-care, skilled-nursing, or transitional subacute-care facilities, providing recovery for orthopedic, rehab, and stroke patients in less-costly settings than traditional hospitals. Higher insurance and government reimbursement rates, along with shorter stays at acute-care hospitals, make these attractive alternatives for cost-conscious providers.

Enter private investment

"Insurance dictates where people go for care," says architect Charles Consagra, principal of Highland Associates, Clarks Summit, Pa. Increased profits attract private capital for expansion into new market niches. In Florida, Texas, California, and the mid-Atlantic states, private developers are financing and leasing new outpatient facilities, designed to physician needs, for cancer treatment, coronary care, and imaging. These private medical facilities do not require the high-overhead spaces that add costs at acute-care hospitals, such as the emergency room and intensive-care unit.

Some states regulate hospital-owned outpatient facilities but not those privately owned and financed, giving for-profits a cost advantage. This may change. "The new federal guidelines on health-care construction are intent on creating a level playing field," says Sprague. Not-for-profits often don't have cash reserves and can't access private capital, particularly in highly regulated states like California and New York (which prohibits for-profit hospitals).

Regulatory policies can undermine the best-laid plans. In California, upgraded seismic codes have prompted hospital retrofits, although there is no funding now available for studies or upgrades. In New Jersey, insurance reimbursement for 24-hour lengths-of-stay were used to calculate the needed number of birthing rooms. "New Jersey pulled the rug out by mandating 48-hour hospital stays, doubling the number of rooms required," notes Beers, but officials didn't offer added capital. Such an unfunded mandate is just one example of what happens as lobbying by doctors, hospitals, insurance companies, and consumers continues to affect policy. The prognosis for health care, then, is for still more change. ■

Schools *continued from page 41*

the community, and an interest in energy-efficient and environmentally friendly designs. One school BOORA recently completed in Newberg combined an elementary and middle school with a senior center and a community sports field, permitting shared dining, meeting, and parking facilities.

An even more ambitious melding of schools and the surrounding community is taking place in Orange County, Calif. There, a pilot project for a state "space saver" school program is placing an $18.8-million, 1,300-student school on the parking lot of a large shopping center. Scheduled for completion in 1998, the school will serve a largely Hispanic student population with a design that emphasizes team teaching and cooperative learning.

To solve the funding bind, some districts also are turning to unusual partnerships. The "education village" envisioned by Charlotte-Mecklenburg schools anticipates sharing resources among different school levels and mentoring by its corporate neighbor, IBM (photo page 41). In Osceola, Fla., the showcase Celebration School will begin construction this summer with nearly $10 million in help from the Disney Development Corp., which hopes to use the school as a magnet for home buyers interested in its new Celebration community. The school, designed by William Rawn & Associates in Boston and Schenkel & Shultz Inc., Orlando, used full-size mockups to test a design approach that will group its 1,100 students in "neighborhoods" of 100 youngsters and four teachers. Although plagued with construction cost overruns, the project already has proven to be a magnet for teachers, with hundreds of would-be faculty members from across the U.S. sending in resumes.

Interestingly, that alone could be the best barometer of whether a school will do well by its students. Although scant evidence supports the notion that slick new schools produce bright young scholars, says Jeff Schneider of the National Education Association, studies have shown a clear relationship between student performance and how teachers view their physical surroundings. Teachers, it seems, do their jobs better when they like their workplace. Reason enough, perhaps, to build new schools and remodel old ones. ■

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169. Thermal/acoustic insulation
The manufacturer says its K-13 product, a spray-on celluloustic material, has been improved by a new adhesive formulation that allows for a spray depth of up to 5 inches in a single application. The adhesive component also reduces the risk of insulation falling out during application, and upgrades the R value to 20. Acoustic performance is also improved, at whichever thickness the site conditions require. UL-listed Class A, K-13 adheres to wood, steel, concrete, and glass.713/433-6701. International Cellulose Corp., Houston.

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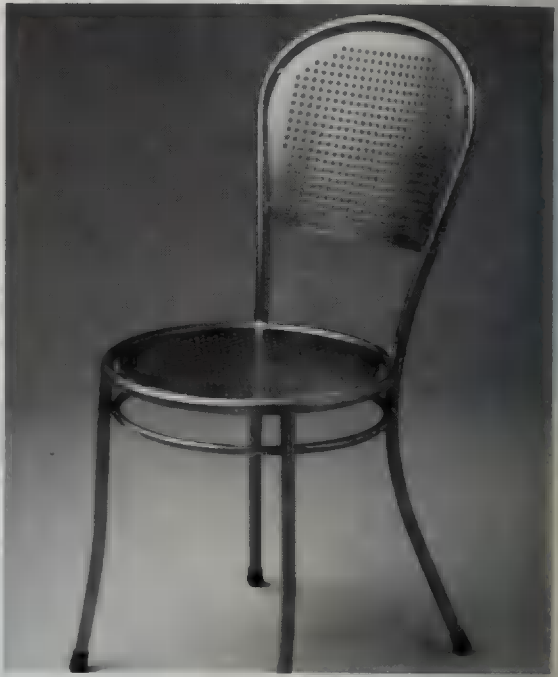
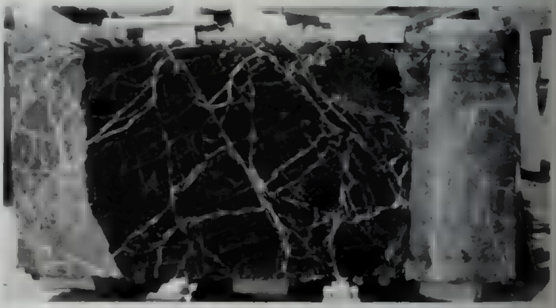
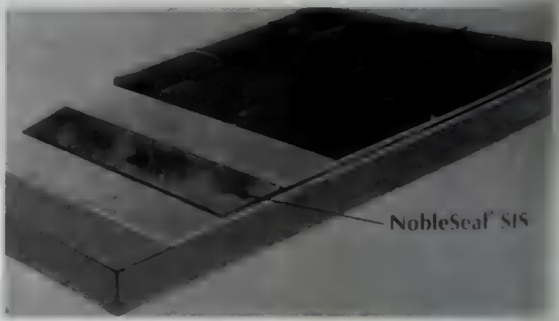


170. Food-court/cafe seating
Part of a new, extensive line of chairs designed to meet the heavy-use needs of shopping-mall food service, Atlantis has a perforated-metal seat and back. Powder-coat colors and floor bumpers are standard; brochure illustrates chairs with list prices from $200 to $300. 414/468-8100. KI, Green Bay, Wis.

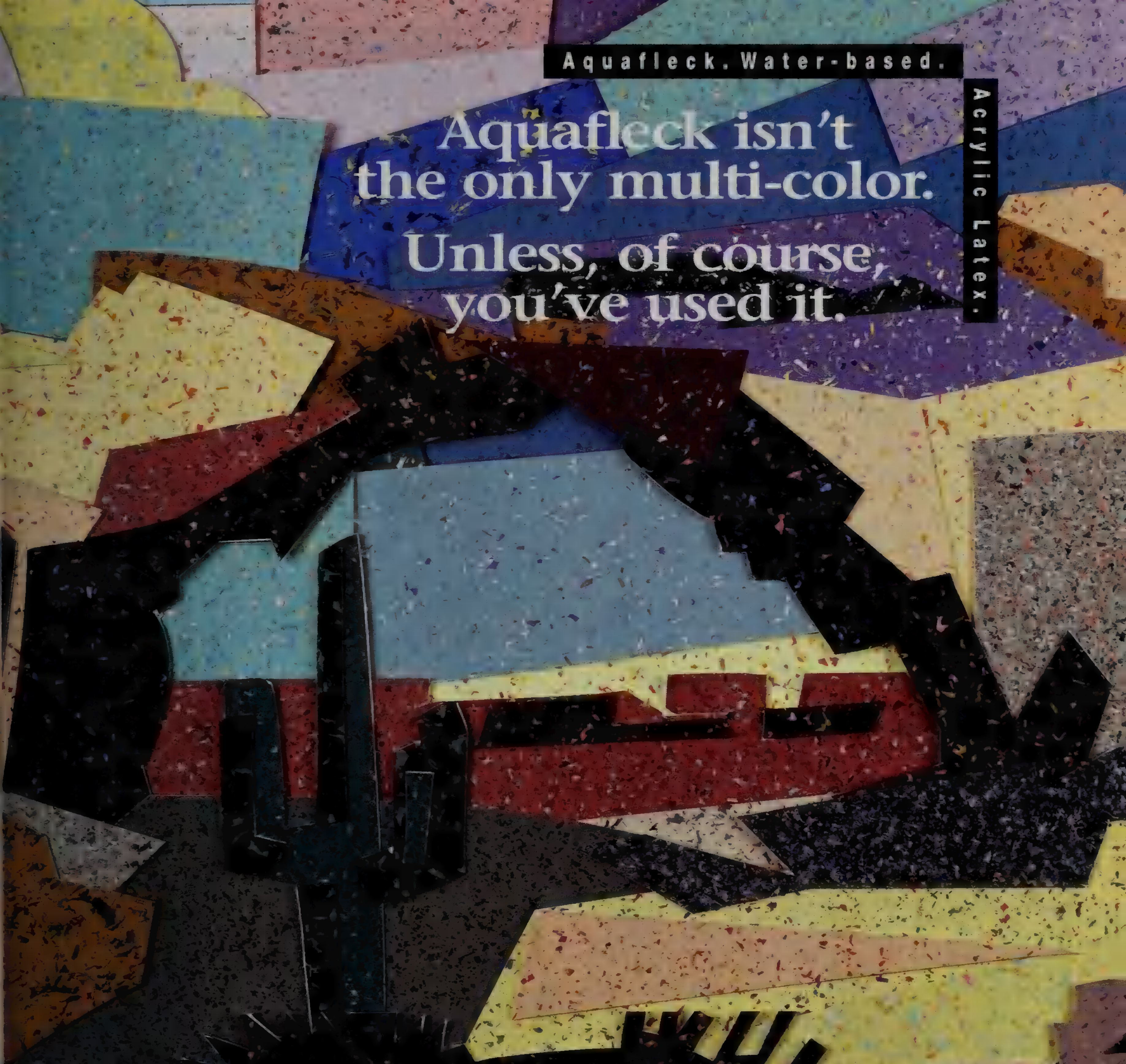


171. Comparing green marbles
Windham Green serpentine is available in tile, slab, and cut-to-size formats from a new fabrication firm. Offered without charge, a relative comparison study ranks 19 green marbles by compressive and flexural strengths, hardness, and density. 800/729-6168. Tennessee Marble, Wadsworth, Ohio.



172. Quieter tile floors
A thin (only 3/64-in. thick) way to reduce impact noise through tile floors, the NobleSeal sound-isolation sheet is said to be easy to install. 800/678-6625. The Noble Co., Grand Haven, Mich.

Continued on page 120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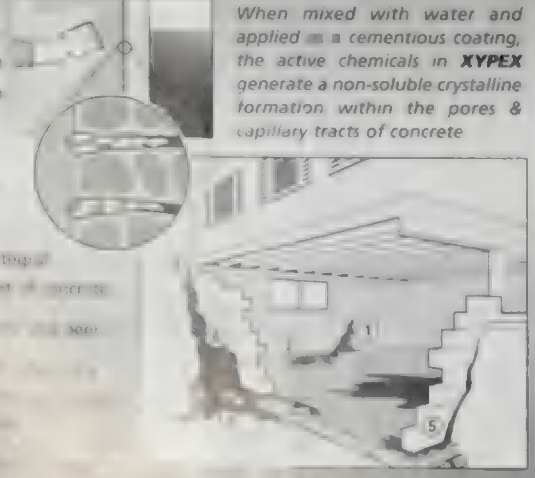

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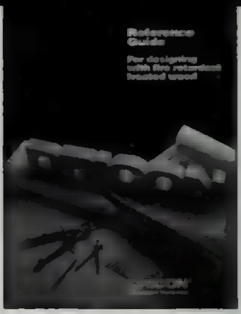
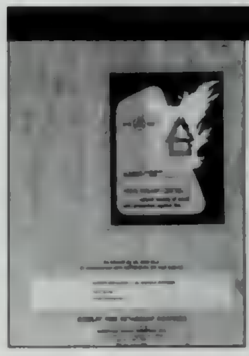
Product Literature/Fire Retardant Products

200. Spray-on fire protection
An eight-page brochure describes all CAFCO fire-retardant and noise-control products, including Blaze-Shield II, a dry fireproofing said to have good density and compressive strength, and CAFCO 400, a new medium-density wet spray offered in ratings of up to four hours. Design manuals offered. 201/347-1200. Isolatek International, Stanhope, N.J.

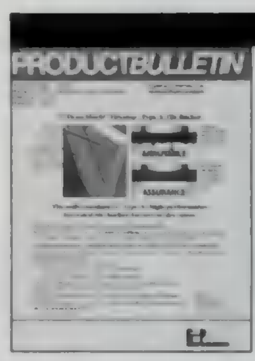


201. Fire-retardant wood
Written for architects and specifiers, an 18-page *Reference Guide* for designing with fire-retardant-treated wood outlines complying applications as referenced in National, Standard, and Uniform model building codes. Includes detail drawings, identification marks, test methods, standards, and a sample spec. 770/801-6600. Hickson Corp., Smyrna, Ga.



202. Clear FR coating
For wood and similar combustibles, DS-Clear is a water-based intumescent varnish that will not obscure interior surfaces. Tested to UL 763 (ASTM E-84), DS-Clear develops a flame spread of 5, with zero smoke. A *Sweet's* catalog describes intumescent performance, application, and test results. 201/941-1991. American Vamag Co., Inc., Ridgefield, N.J.

203. Fire-protection boards
A four-page brochure describes Promat boards as highly impact- and moisture-resistant, with the appearance of cement precast. Available in ratings of up to four hours, boards are easy to install around steel cross sections without special framing, and do not require a final spray layer. 800/277-6628. Promat Fire Protection, Div. Eternit, Inc., Blandon, Pa.



204. Fire-rated tile backer
Suitable for both wet and dry areas, Firestop Type X is a fire-rated DensShield product only 5/8-in. thick. Lighter than cement board, the tile-backer aligns with other wallboards without shimming. Available in 4- by 8 panels labeled for one- and two-hour fire ratings. Product bulletin and samples: 800/225-6119. Georgia-Pacific Corp., Atlanta.

205. Fire-containment systems
A 20-page brochure describes the benefits and capabilities of Thermafiber life-safety insulations, including fire-smoke stops, curtain-wall insulations, safings, duct fireproofing, structural fireproofing, and sound- and fire-control insulations. Gives details and fire- and smoke-chamber test data. 800/USG-4YOU. USG Interiors, Chicago. ■

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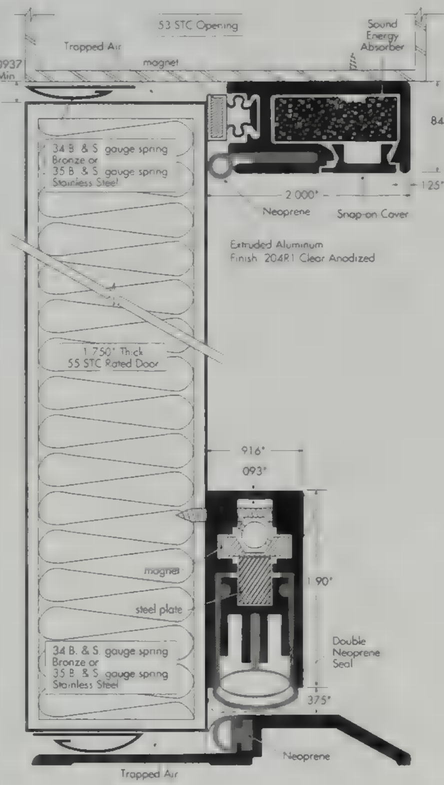
53 STC Opening
Tropped Air
Sound Energy Absorber
0937 Min
magnet
848"
34 B. & S. gauge spring Bronze or 35 B. & S. gauge spring Stainless Steel
125"
2 000"
Neoprene
Snap-on Cover
Extruded Aluminum
Finish 204R1 Clear Anodized
1 750" Thick 55 STC Rated Door
916"
093"
magnet
1 90"
steel plate
Double Neoprene Seal
34 B. & S. gauge spring Bronze or 35 B. & S. gauge spring Stainless Steel
375"
Neoprene
Tropped Air

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Gasketing System	Head & Jamb	Saddle	Auto. Door Bottom	STC Rating
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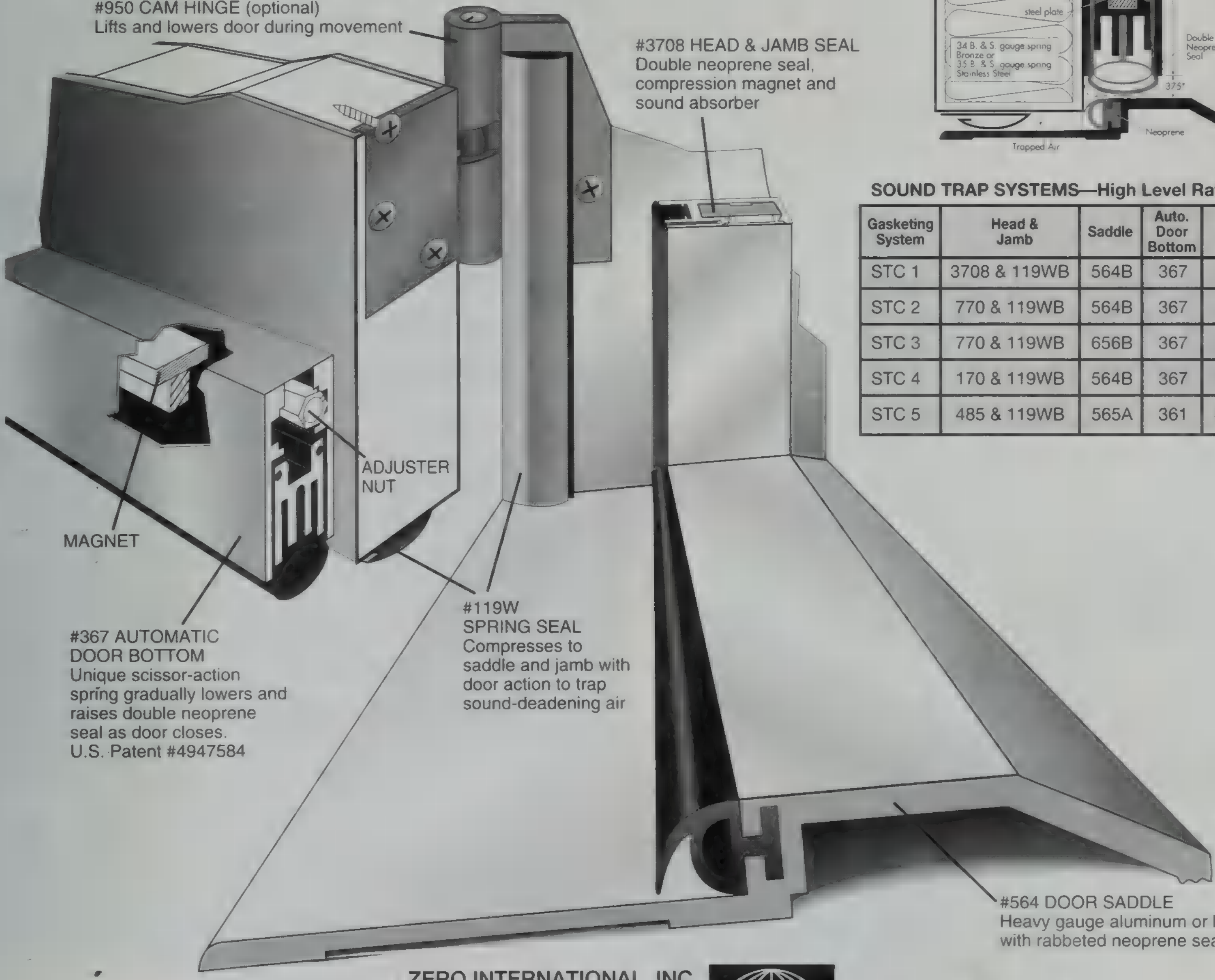
STC 2	770 & 119WB	564B	367	52 STC
STC 3	770 & 119WB	656B	367	51 STC
STC 4	170 & 119WB	564B	367	51 STC
STC 5	485 & 119WB	565A	361	49 STC



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173. Light-reflecting ceiling tile
Armstrong has introduced a version of its new Ultima acoustic ceiling that has been made specifically to reflect the greatest possible amount of light. This high incidence of light reflectance—a value of 0.89—makes this ceiling particularly effective with indirect lighting systems, improving the efficiency of individual luminaires and permitting wider spacings. Tiles are constructed with the humidity-resistant, "no-sag" Ultima core, and have a smooth, non-directional surface texture with no visible holes or fissures. This surface itself resists dirt build-up, even when placed close to hvac diffusers, and has five times the scratch- and scrub-resistance of other fine-textured panels. Acoustical performance is excellent, says the manufacturer, with a Noise Reduction Coefficient of 0.70; Ultima Hi-LR panels have a Class A flame-spread rating. Available in 2- by 2- and 2- by 4-ft sizes, with square-cut or tegular edges. 800/448-1405. Armstrong World Industries, Inc., Lancaster, Pa. ■

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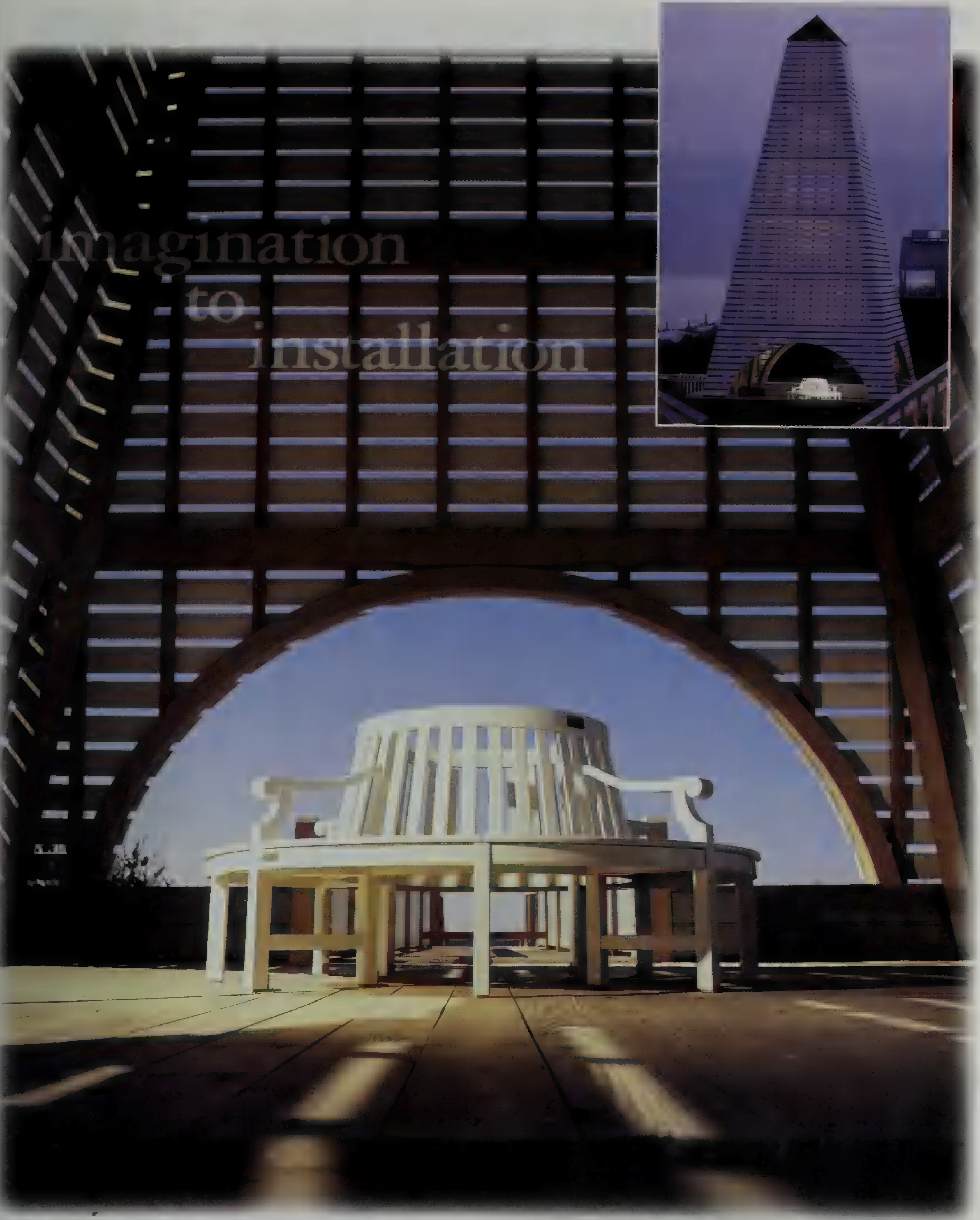

Architect: David Coleman / Architecture, Seattle, WA and Burlington, VT

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Manufacturers' Sources

Pages 68-73
Great Northwest Branch Library, San Antonio
Lake/Flato Architects
Bowstring trusses: TrusJoist MacMillan. Builtup roof: Schuller. Galvanized roof: Berridge. Windows and entrances: Architectural Aluminum. Locksets: Schlage. Hinges: Hager. Closers: Rixson. Drywall: Gold Bond Building Products. Cabinetry: Baring Enterprises. Carpet: Mohawk. Lighting: Hubbell.

Pages 74-77
Clayton Community Library, Clayton, Calif.
Simon Martin-Vegue Winkelstein Moris, Architect
Curtain wall and entrances: Kawneer. Glazing: Libby-Owens-Ford. Solar film: Southwall Technologies. Skylights: O'Keeffe's. Metal roof: Carlisle. Builtup roofing: Schuller. Wood doors, cabinetry, and custom woodwork: NorCal Millwork. Locksets: Schlage. Closers: LCN. Exits: Monarch. Ceilings: Sono-Ceil. Reading tables and carrels: Worden. Lounge furniture, reading chairs: Bernhardt. Slate counters: Kirkstone. Acoustic-panel fabric: Carnegie (Xorel); Designtex. Laminate: Nevamar (reading tables); Abet Laminati (stacks). Concrete floor: L.M. Scofield. Carpet: Prince Street Technologies. Stack fixtures: Gamalux. Fluorescents: Ledalite. Decorative sconces and pendants: SPI. Exterior lighting: Moldcast: Bega; Greenlee.

Pages 78-81
Sepulveda Recreation Center, Los Angeles
Koning Eizenberg Architecture, Architect
Standing-seam metal roofing: Custom Metal & Air Conditioning. Glass block: Pittsburgh Corning (Vue pattern Security Block). Lobby flooring: Azrock. Trusses: Lee & Daniel Steel Fabricators. Skylights: Acralight. Exterior doors, window frames: Los Angeles Fireproof Door. Locksets: Best Lock. Exit devices and closers: LCN. Glazing: GE Plastics (Lexan). Solid-maple gym floor: Horner Flooring. Water fountains: Acorn. Integral-color CMU: Orco Block. Polished wire glass: Pilkington.

Pages 82-87
Irvington Community Center, Fremont, Calif.
ELS/Elbasani & Logan Architects
Storefronts and windows: U.S. Aluminum. Glazing: PPG Industries, Glass Group (Solex). Fixed sunshade: custom by architect, fabricated by W. A. Thomas. Alaskan Yellow Cedar cladding: Delta Cedar Products. Laminated-glass enclosure at reception: Brite-Vue. Sliding doors: Horton Automatics. Barn doors: Amweld. Locksets: Best Lock. Exits: Von Duprin. Gym ceiling: Acoustideck. Wood ceilings: Potlatch. Builtup roofing: Schuller. Cabinetry: BK Mills. Laminate surfaces: Formica. Stained concrete floor: QC Products. Carpet: Collins & Aikman. Gym floor: Robbins. Gym lighting: Halophane. Exterior fixtures: Poulsen. Low-voltage cable lights: Translite Systems. Downlighting and exterior wallwashers: Elliptipar. Task lamps: Chicago.

Pages 88-91
George Robert White Youth Center, Boston
Leers Weinzapfel Associates, Architect
Chisholm Washington Assoc., Associate Architect
Storefronts and entrances: EFCO. Glazing: Libbey-Owens-Ford. Roofing: Firestone Building Products. Gym floor: Robbins Sport Surfaces. Wood doors: Weyerhaeuser. Locksets, closers, and exits: Sargent. Acoustic ceiling: Armstrong. Resilient flooring: Tarkett. Paints: Sherwin-Williams. CFL fixtures: Quality Lighting. Metal-halide: Lam Lighting. Exterior: Lithonia.

Pages 92-95
Ross-University Hills Branch Library, Denver
Michael Brendle Architects
Curtain wall: U.S. Aluminum. Glass block: Pittsburgh Corning. Builtup roofing: Schuller. Standing-seam roof and cladding: Tomen. Glazing: Libbey-Owens-Ford. (Evergreen). Reflective coating: Viracon. Perforated-metal rail: McNichols, fabricated by Metro Steel. Wood doors: Weyerhaeuser. Locksets: Best Lock. Exits: Von Duprin. Entrances: Besam. Ceilings: Armstrong. Paints: Devoe & Raynolds. Cabinetry: Chambers Millwork. Resilient flooring: Freudenberg (Norament). Carpeting: Bentley. Shelving: Montel. Downlighting: Kurt Versen. Elevators: Schindler. Task and ambient fixtures: Litecontrol; Columbia. Exterior lighting: Prescolite. Furniture: Herman Miller.

Pages 96-101
City of Tempe Police Substation, Tempe, Ariz.
Architekton, Architect
Translucent panels: Kalwall. Storefronts, sliders, and entrance: Southwest Aluminum. Security glass: HGP. Wood doors: Fenestra. Locksets, closers, and exits: Corbin. Ceilings: USG Interiors. Operable walls: Hufcor. Paints: Dunn Edwards. Integral-color CMU: Superlite. Tile: Dal-Tile. VCT: Armstrong. Exterior lighting: Kim; Lithonia. ■

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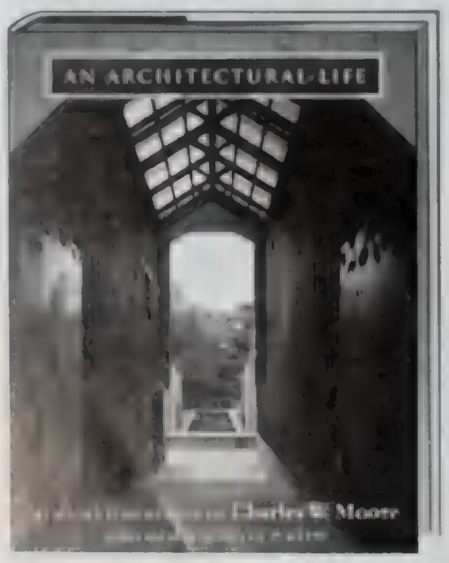

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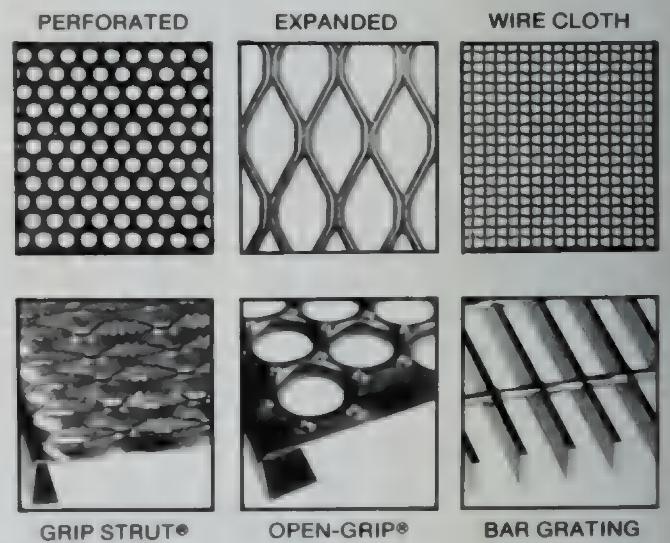

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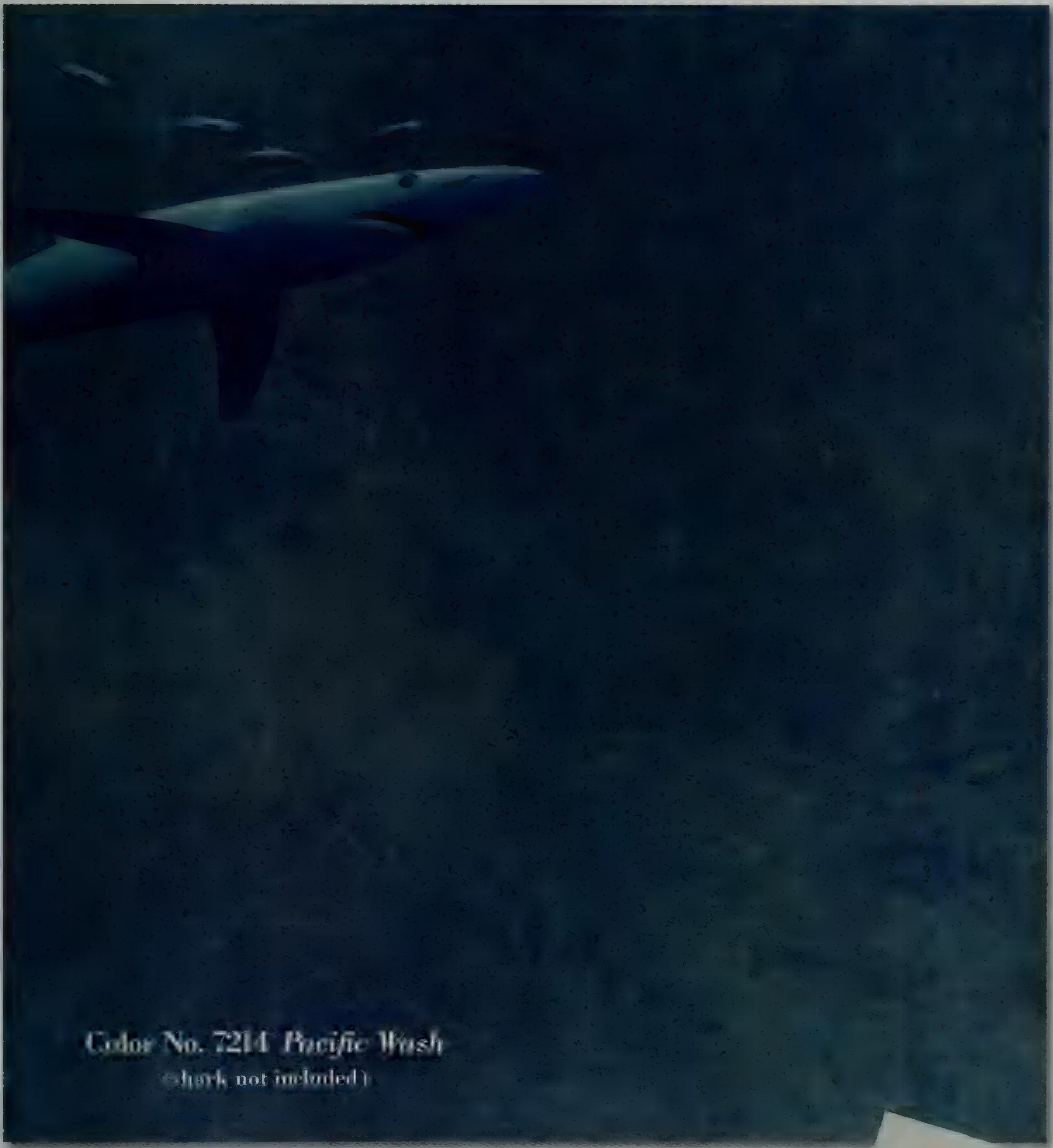

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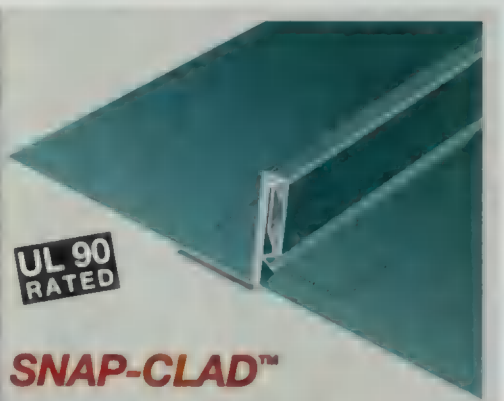

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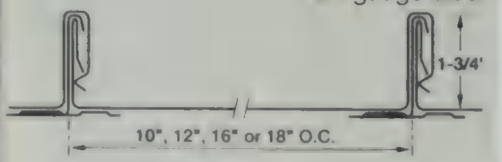

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Color: Sandstone

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MACINTOSH & ARCHITECTURE

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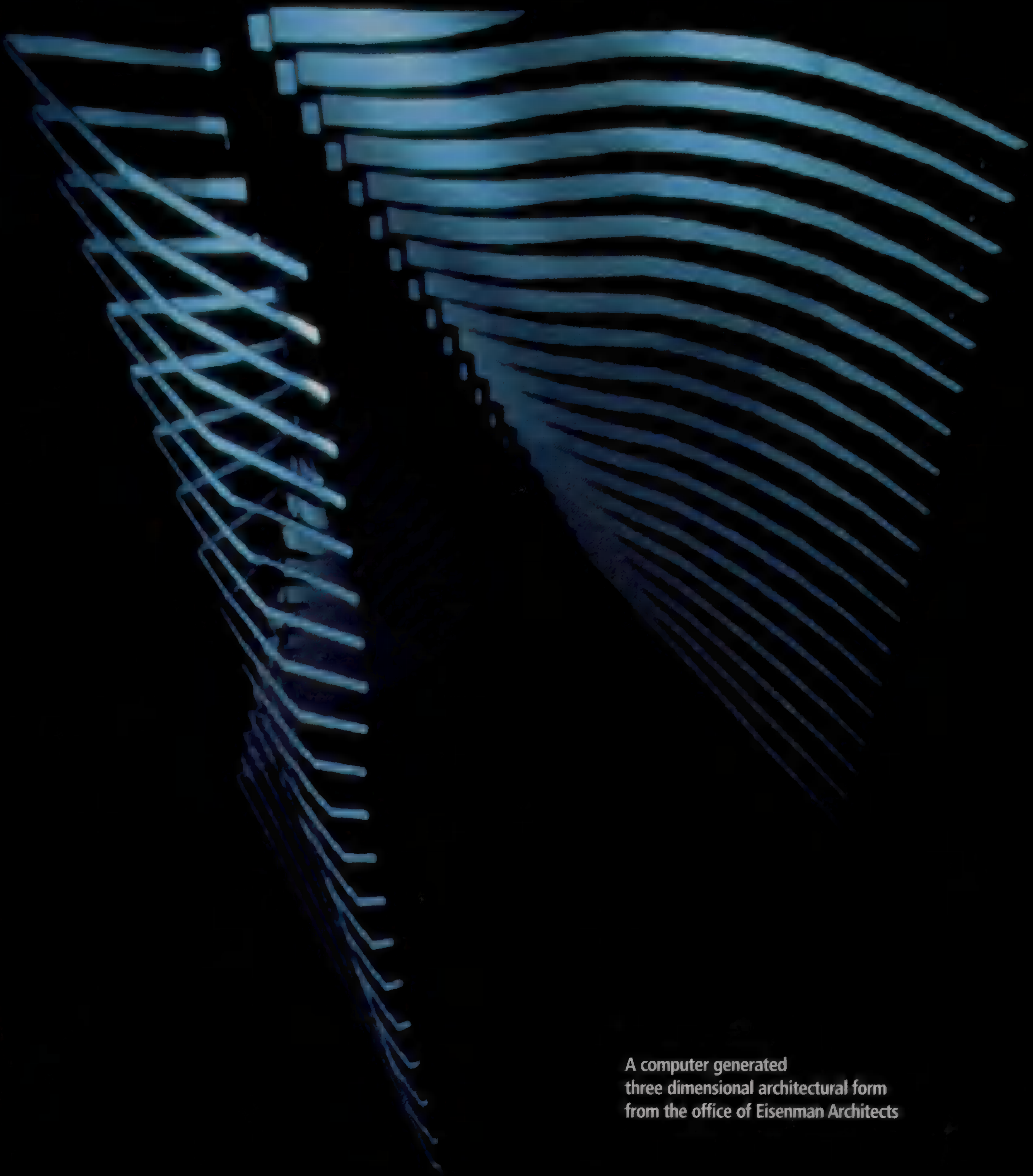

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A Special Advertising Supplement to Architectural Record

Introduction

Terry A. Beaubois, AIA
Palo Alto, California
Beaubois@aol.com

If you have been following *Macintosh & Architecture* over the years, you are aware of the progression of new Apple technology into the practice of architecture. (See Architectural Record issues of October 1994 and May 1995)

1994:
- Powerful color PowerBooks
- PowerMacintosh computers
- Digital Cameras

1995:
- On-line services / Internet
- QuickTime VR
- Information Management Systems

This year, the new technology that architects should be aware of includes updates and upgrades of all of the above, plus:
- Internet Websites
- Intranet Networks
- Multimedia Database Management

But, as we have maintained in this section all along, it's not about technology – it's about practicing architecture.

Looking beyond CAD (computer aided drafting) there is the broader concept of the "Computer Aided Practice", which is how we will continue to present information regarding technology and the practice of architecture, in this section.

Terry Beaubois has been using computers in his practice of architecture since 1978. A graduate of the University of Michigan College of Art and Architecture Masters Program (1972), he has practiced architecture in Michigan, Massachusetts and California. His design experience includes hospital, high-tech, hotel/resort, and single family residential design.

Beaubois has lectured at Stanford University on the advanced use of computers in architecture and is featured on panels discussing Computer Aided Practice for the AIA PIA, AEC, and PCBC conferences. He is vice president of RDC Interactive Media, Inc., a firm specializing in the production of digital media for the building industry.

Macintosh & Architecture
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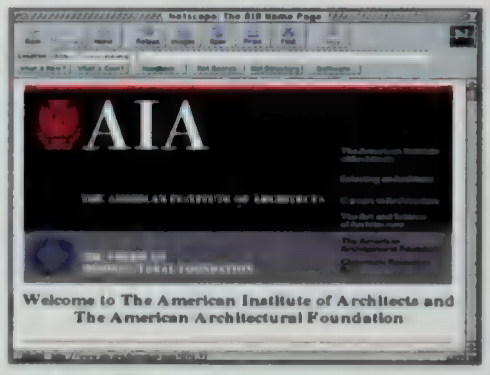
Internet Websites

With the incredible explosion of the awareness and use of the "internet", we are beginning to understand how architects can take advantage of this powerful resource. The internet offers the ability to display or send and receive data to and from anywhere in the world (that has an internet connection) any day of the week, any time of day. This will certainly have a tremendous impact on our practices and our clients' expectations.


Netscape: The AIA Home Page

AIA

Welcome to The American Institute of Architects and The American Architectural Foundation

Intranet Networks

An interesting side-effect of the evolution of the internet "browser" technology (the graphic interface with which one "views" the internet) is the ability to use that same browser to view all of your office's data on an internal network or intranet. The advantages include the fact that Macs, Windows, and UNIX computers can all access and view the same information. Many companies find that quite unifying. In addition, all of the information prepared for viewing internally is then ready for viewing on the internet.

Multimedia Database Management - it's the future of all business (ORDBMS)

Since last year, when I mentioned the idea of computer-based information management systems in business, it has become clear to me that the future of all business revolves around the successful management of multimedia data. Currently many of us are trying to keep track of letters, proposals, spreadsheets, and contracts in one part of our office, CAD drawings in another, and then our photographs and videos in another.

There is little integration of all of the data that we must manage on a daily basis. As drawings, and now images (including photography and video), are becoming digital, we will have an opportunity to organize all of our data into a unified database, regardless of what media it is.

Storing, retrieving, and sending that data around the office and to a client will become an extremely important aspect of our practices.

Can architecture be fun again?

I recently had the pleasure of upgrading the computer on my desktop to a PowerMacintosh 8500/120, with a 2 gigabyte hard drive and 48 MB RAM. (What that means is that it is very fast, it can hold a lot of information and it can have a lot going on at one time.) I came in one Saturday to really test it out. By the end of the day I had made a "movie" and distributed it to everyone's computer in my office. I was able to do drawings, make titles, import photographic images, shoot video, edit the video, add a sound track, and save it all as a QuickTime movie – all on one computer!

As the enjoyment and ease with which one is currently able to do multimedia projects on the Macintosh, comes to the practice of architecture, we are experiencing a profound transformation of the profession.

Using exciting new technologies, such as QuickTimeVR, architects can now truly show their designs in 3D – both photographic and computer generated images. I continue to believe that QTVR is the most important computer tool to come along for architects.

Expect the QTVR capability to be integrated into easy to use applications, as Graphisoft has already done with ArchiCAD VR, which produces QTVR views of 3D CAD spaces from within ArchiCAD.

More architects are discovering and utilizing programs usually associated with the graphic design profession, like Adobe Photoshop, a very powerful and versatile graphic and photographic image capture, creation, and modification software program.

Digital cameras are continuing to become more widely used for quickly collecting photographic information for integration into reports or for capturing and storing record images of sites and site conditions.

The Computer Aided Practice

Finally, keep this in mind: There is not just one way to have a Computer Aided Practice - there is no one ultimate software program that does everything well. Just as prior to computers, not all architects practiced exactly the same way, with the Computer Aided Practice, each firm will find ways to enlist the tools and resources listed in this supplement in a manner that works for them.

Just see how far some of the talented architects featured in this year's section have developed their Computer Aided Practice.

If it did less, you could call it a workstation.

The Power Macintosh® is one of the most powerful PCs in existence. It runs the Mac™ OS, of course. DOS and Windows, too.* It can run UNIX.® It runs all kinds of advanced design, engineering and analysis software at accelerated speeds — from CAD and 3-D modeling to data acquisition and analysis. Ethernet compatibility is built in. And, because it employs a high-speed RISC microprocessor, it outperforms Pentium-chip-based PCs by up to 92%.†

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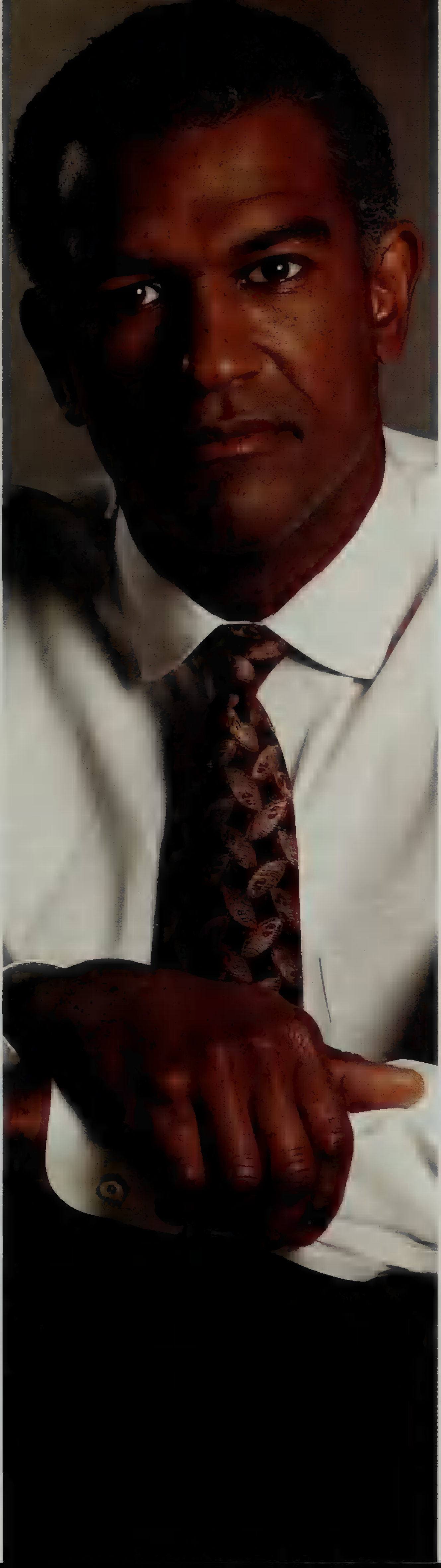
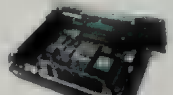
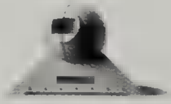


With Power Macintosh and the Mac OS, you can use multiple monitors at once. So, for example, you can work with two levels of a design, each on its own monitor. Or track automated analyses on one screen. While you express your ideas on another.



Every Power Mac™ computer can read, write and format disks for DOS, Windows and OS/2. And every Power Mac lets you open and work with files for DOS and Windows systems. The Power Macintosh 7200/120 PC-Compatible system comes with either a Pentium 100 MHz or an entry-level 586 100 MHz card. Both PCI-based cards are also available separately.



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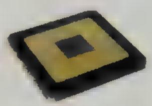

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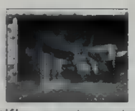

Hundreds of scientific, engineering and design programs — such as MiniCAD, MicroStation, LabVIEW, Vellum, Sketch!, Mathematica, Photoshop, StatView and more — have been accelerated for Power Mac.

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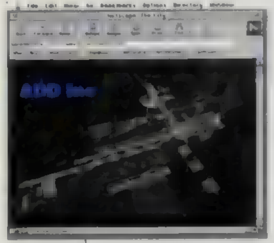
*The Power Macintosh 6100/66 DOS Compatible, and other Power Macintosh models using SoftWindows™ from Insignia Solutions, run MS-DOS 6.2 and Windows 3.1. †For proof, ask for the 1995 Ingram study comparing Power Mac computers to Pentium-processor-based computers running Windows. © 1996 Apple Computer, Inc. All rights reserved. Apple, the Apple logo, Macintosh, Power Macintosh, QuickTime and "The power to be your best" are registered trademarks of Apple Computer, Inc. Mac, Power Mac and QuickDraw are trademarks of Apple Computer, Inc. PowerPC is a trademark of International Business Machines Corporation, used under license therefrom. All other product names are registered trademarks or trademarks of their respective companies. All Macintosh computers are designed to be accessible to individuals with disability. To learn more (U.S. only), call 800-600-7808 or TTY 800-755-0601.

A 75-Person "All Macintosh" Architectural Firm

ADD Inc, Cambridge, Massachusetts



This year is ADD Inc's 25th anniversary and, as a 75-person architectural firm, there is no aspect of architectural practice that is not addressed in their office – and they do it all on Macintosh computers.

ADD Inc's computer use started in 1984 with a UNIX system that was "very powerful, but very complex" according to Jill Rothenberg the Information System Director of ADD Inc. The role of CAD operators was very important then, because the operation of CAD stations required individuals specifically trained to use the system. Principals, designers, and most project managers did not use the machines. And often, to complete a project, the project team would resort to hand drawing efforts to finish the drawings.

In 1992 ADD Inc switched to Macintosh computers. "Our choice to switch to the Mac was about ease of use," states Rothenberg. "With a firm this size, we do a lot of business management and administration, as well as designing and drafting. Macintosh computers allow us to offer all firm members the ability to perform the variety of work activities required in architecture practice, on one machine."

ADD Inc still has computers that function principally as CAD stations, but the same stations can also be used for word processing, spreadsheets, desktop publishing, and graphics. What they don't have anymore are "CAD operators", or designers and principals that are dependent on a specialized CAD or technical person to make changes to project drawings.

All of ADD Inc's designers and architects are very computer literate and the firm provides training for everyone. This has been very liberating for designers and upper management. It has also reduced the number of people dedicated to "administrative-only" or "CAD-only" functions.

It is interesting to note, that when ADD Inc is interviewing prospective employees, the focus is not on the candidate's computer skills. They have found that the speed with which they can train new employees on the use of a Macintosh "allows us to concern ourselves with a job applicant's design abilities and management skills".

With the Macintosh computer platform throughout the office, Add Inc is able to easily assemble various types of information, from a variety of software programs, into one presentation and do their own desktop publishing. "Our presentations look GREAT. Because of the graphic strengths of the Macintosh, all of our reports – ADA, site reports, programming documents – have a high-end, beautiful look to them," says Rothenberg.

ADD Inc creates presentation graphics from construction documents drafted in PowerCAD. These drawings are then combined with other graphics and text using Adobe Persuasion, a computer presentation program, or they can be printed or mounted on presentation boards. We use FastTrack Schedule in our presentations to clients for graphically conveying project schedules. "We do all of this, both for prospective clients and during a project, so that our clients can better understand our work," Rothenberg adds. They have recently even used ArchiCAD's VR capability in a presentation to Reebok.

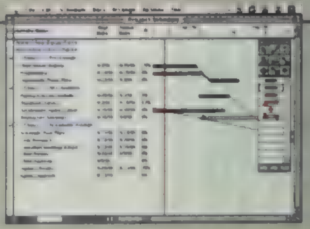
"Our choice to use Macintosh computers was definitely about ease of use – we were interested in giving our staff the tools they needed to be effective and efficient. I've seen a lot of large firms switch to Macintosh for the same reason."

ADD Inc's projects include architecture and interior design for retail and corporate clients including Hewlett-Packard, 3COM, Reebok's Corporate Campus, as well as several multi-unit housing designs.

RESOURCES...

PROJECT ADMINISTRATION:

FastTrack Schedule $299 AEC Systems, Inc. Phone: (800) 346-9413	FastTrack Schedule allows architects to quickly create graphic displays of "timeline" or Gantt (bar) charts. Tasks can be linked. Task information such as start date, finish date, and duration can be entered graphically or numerically. The program allows you to easily draw activity bars right on the screen.



Architechtronica	ArchPIM	$95	310-376-7054
BEEDEE	MacArchitect	$795	206-443-1010
Claris Corporation	FileMaker Pro	$199	800-544-8554
CORGROUP	ESP - Project Administration Software	Call	203-458-9363
Freemyers Design	Invoice and List It for Excel	$49	916-533-9365
Great Plains Software	Accounting software	$795	701-281-0550
Intuit	Quicken	$49	415-944-6000
Lotus Development Corp.	Notes	call	617-577-8500
[illegible] Inc.	MesaMail	$79	505-672-1998
[illegible]	Now Up-to-Date & Now Contact	$75	503-274-2800
[illegible]	Panorama database	$395	714-841-7779
[illegible]	Beyond Breakeven	$169	619-772-1758
[illegible] Partnership Architects	ArchAccount	$295	801-586-9494
[illegible] Corp	WordPerfect	call	800-451-5151

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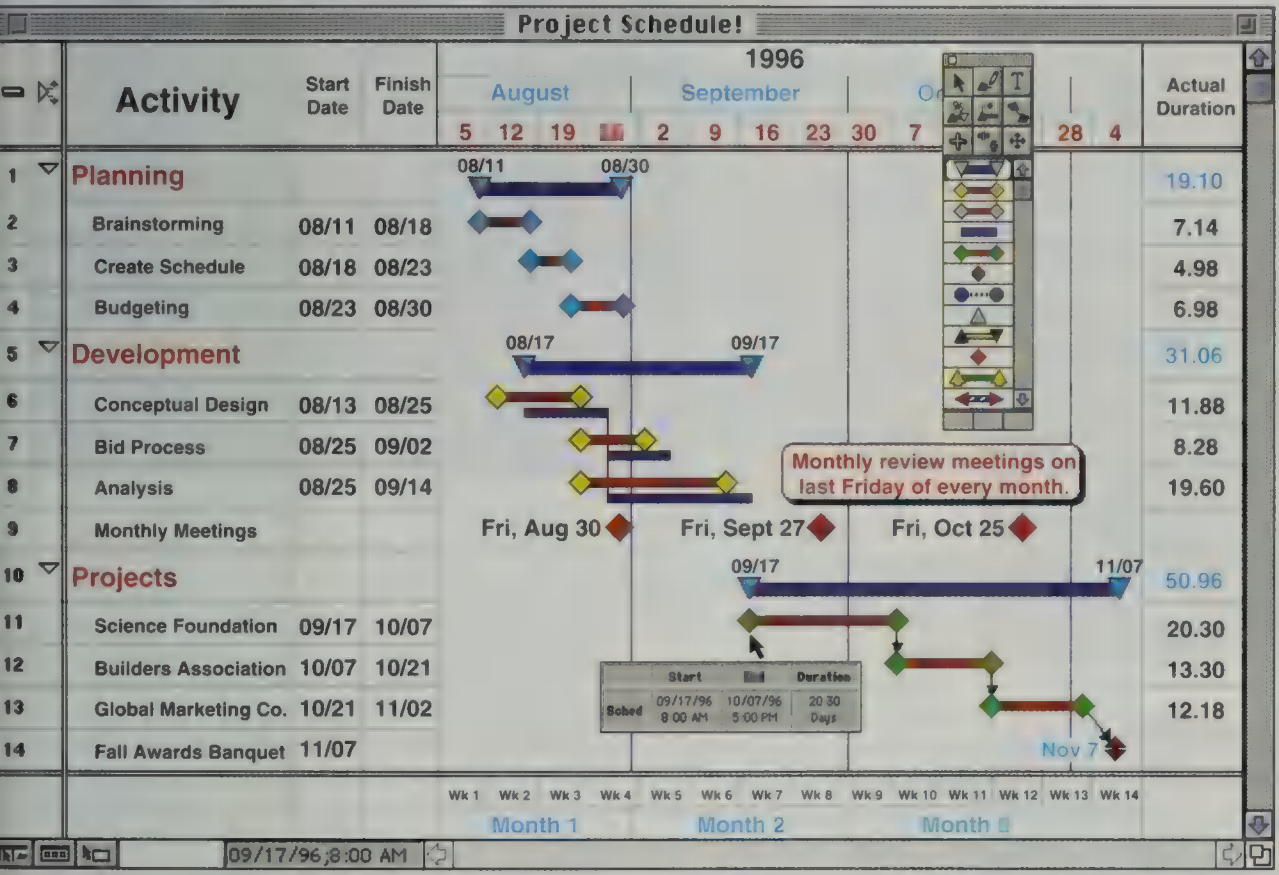

Project Schedule!

	Activity	Start Date	Finish Date	Actual Duration
1	Planning			19.10
2	Brainstorming	08/11	08/18	7.14
3	Create Schedule	08/18	08/23	4.98
4	Budgeting	08/23	08/30	6.98
5	Development			31.06
6	Conceptual Design	08/13	08/25	11.88
7	Bid Process	08/25	09/02	8.28
8	Analysis	08/25	09/14	19.60
9	Monthly Meetings			
10	Projects			50.96
11	Science Foundation	09/17	10/07	20.30
12	Builders Association	10/07	10/21	13.30
13	Global Marketing Co.	10/21	11/02	12.18
14	Fall Awards Banquet	11/07		

Monthly review meetings on last Friday of every month.

	Start		Duration
Sched	09/17/96 8:00 AM	10/07/96 5:00 PM	20.30 Days

09/17/96;8:00 AM

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om Bar and Milestone Styles
Breaks • Shift Items in Work Units
ure Schedule Defaults • Hide Graph
ut Options for Multi-columnar Reports
ations in Work Hours & Work Days

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3 Power

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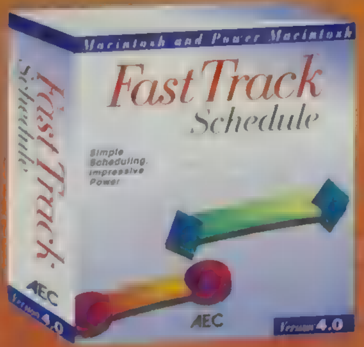

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Circle 16 on inquiry card

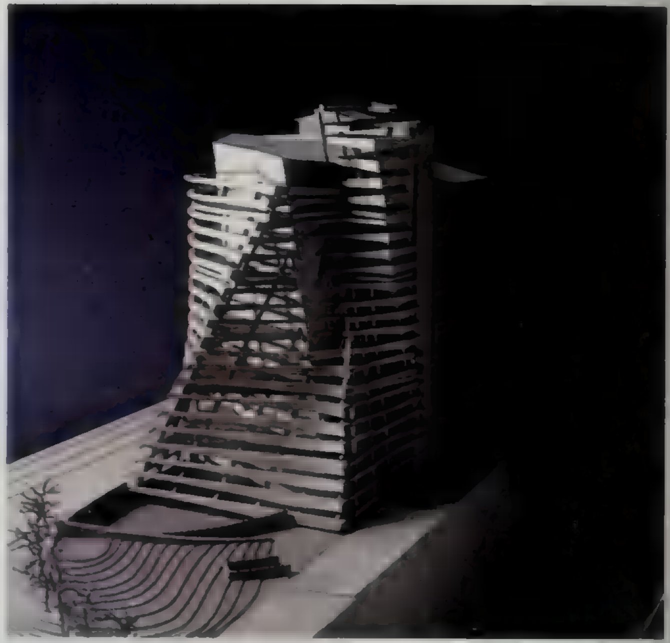
The Transformation of Drawing:
Computers at Eisenman Architects

Eisenman Architects, New York, New York

Architecture has traditionally been read as a dialectic condition of positive or negative, figure or ground; we have never measured architecture as contingent space, the possible interstitial condition between solid and void, between interiority and exteriority, between profile and blurred figures. The electronic environment helps us to register changing impressions effecting an other space in architecture: a space between building mass (for example, a wall, a column, a surface) and a void that is the negative of that solid. This kind of architectural inscription would be otherwise impossible without the incorporation of a certain kind of digital representation.

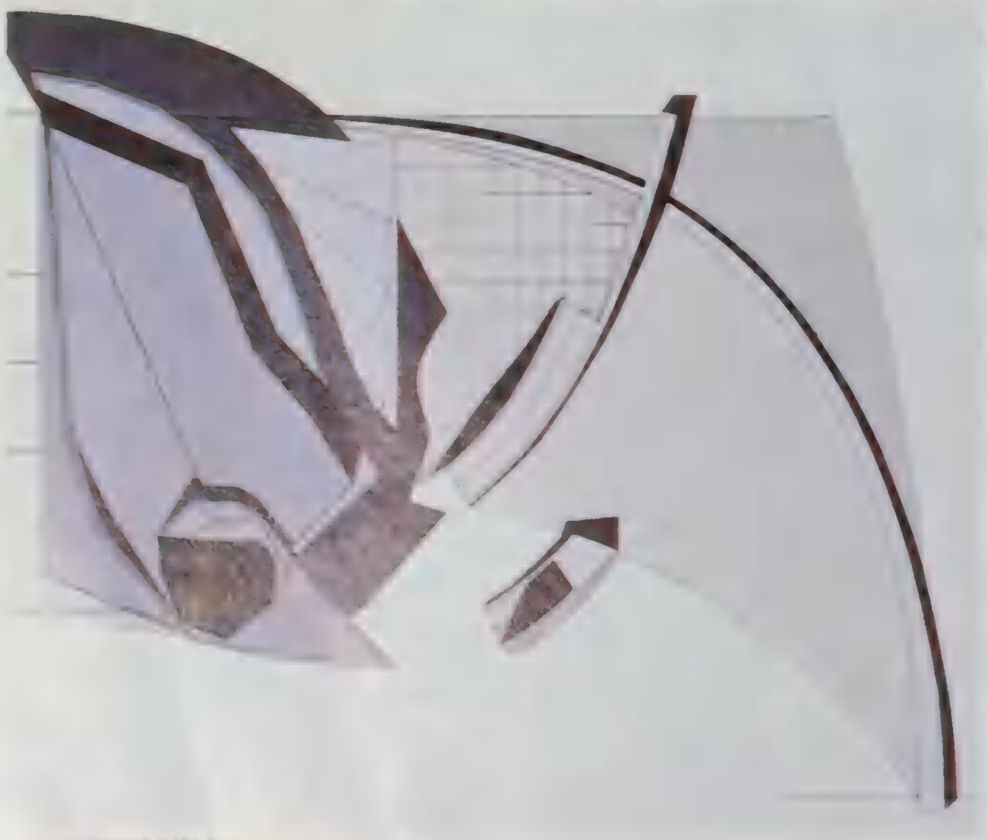
Computer software allows us to look at possible analogies that can be brought to architecture from other, more dynamic systems, such as the properties of liquids and crystals, impulses of energy, radar and radio waves, and musical harmonics. Our work is an ongoing attempt to discover the possibility of an architecture that realizes its process of making, and therefore its conceptual strata, in the three-dimensional object itself. Thus, the computer is used as a tool to analyze interactive, even hypothetical physical phenomena as they might effect three-dimensional space; it allows unpredictable events to emerge as unpredictably as form, thus circumventing the architectural consequences of formal composition or externally imposed rules of organization.

In our Haus Immendorff project for an artist's cafe and studio on the Dusseldorf Harbor, for example, the soliton wave was used as an analogy to generate a self organizing or emergent form. Solitons are pulses of energy moving through solids, liquids, or gasses to form non-linear interactions binding sine waves together. The twisting form of the Haus Immendorff building derives from a computer analysis of soliton wave phenomena, which resulted in the structure's inner and outer volumes whose oblique surfaces intersect each other as they twist vertically. Similarly, the computer was used as a conceptual tool in the design of the Max Reinhardt Haus, a multi-use high-rise building in Berlin. The design team began by digitally mapping the Moebius strip, a three-dimensional form with an unbroken continuity between its interior and exterior surfaces.



Haus Immendorff - site model.
Photo: Dick Frank

The form of our Center for the Arts at Emory University in Atlanta, Georgia is the result of a rigorous computerized investigation of the geometrical properties of a point in space. The Center is a 160,000 square foot facility accommodating four major performance spaces along the east side of a sculptural, multi- level lobby. The building's undulating folds derive from an exploration of musical harmonies and the topographical profile of the ravines that cross the Emory campus; the folds that occur on the outside surface of the building are transformed to the inside through a mathematical and geometrical process involving computer analysis. The design team first looked at the way in which the hypothetical fields of force represented by the ravine topography distorted the original campus grid extended over the site. This distortion resembled the sine and cosine waves of musical harmonics, and when applied to the surfaces of four basic typological boxes, resulted in a structure composed of "large scale" and "small scale" folds. The complexity of the structure required a computerized analysis of the folds and volumes to generate the precise geometric calculations needed for construction documents. In a section of the fold separated by transverse planes, for example, the four points thought to constitute a plane do not in fact lie in the same plane. This results in a surface similar to a hyperbolic paraboloid, which would pose difficulties in construction. As a solution, a triangular system was devised using the computer to create multiple planar surfaces, each with three points; these pyramidal surfaces connect to form the cubic volumes of the building. For this work the client, Emory University, provided additional computer support to resolve the complex Boolean operations that



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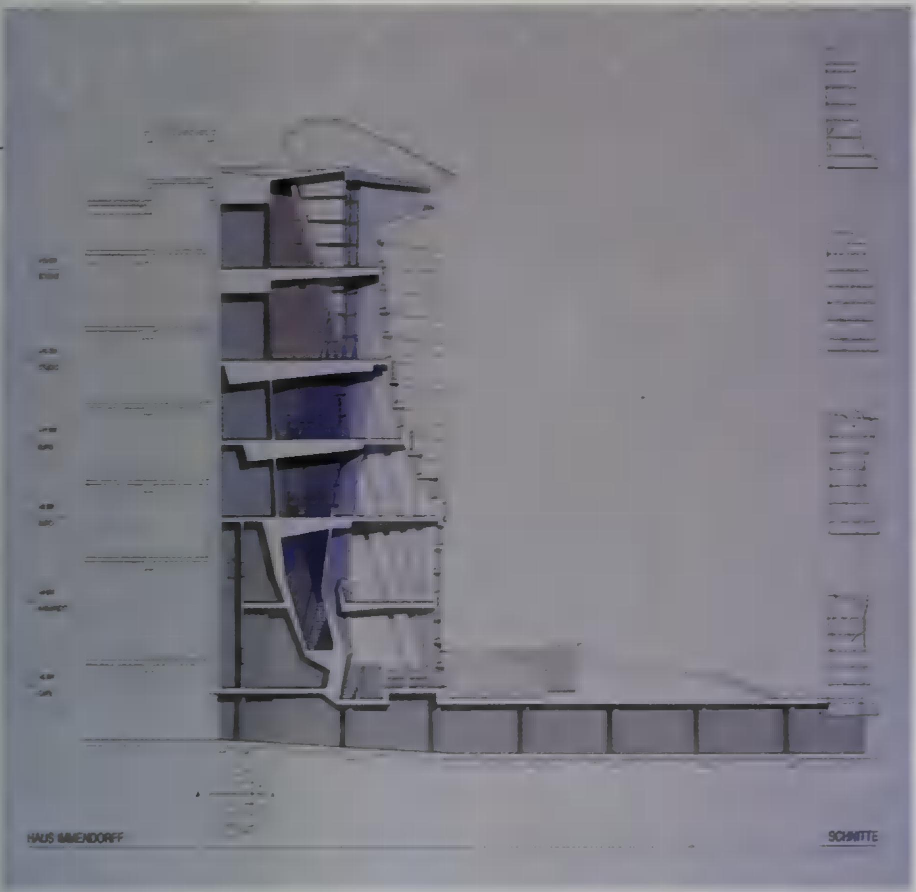

Haus Immendorff Section.

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in-house computers are unable to perform.

Eisenman Architects use Macintosh and IBM PC compatible computers in all phases of their work, including conceptualization, design development, presentations, and construction documents. The office uses two different platforms for architectural design and drafting, linked through a network: form•Z software runs on Macintosh Quadra computers and is utilized as a conceptual, three-dimensional design tool. AutoCad software studies the drawings in further detail and is used more specifically for architectural drafting.

The Editor would like to thank Eisenman Architects for providing the content for this essay.

> "Computer software allows us to look at possible analogies that can be brought to architecture from other, more dynamic systems..."
>
> - Eisenman Architects

ROJECT MANAGEMENT:

rchitechtronica	254orms, T&E	$95 ea.	310-376-7054
vistar Systems	Avistar Enterprise Collaboration System	$3,500	800-568-2847
laris Corporation	ClarisWorks	$129	800-544-8554
laris Corporation	MacProject Pro	$599	800-544-8554
veryWare Development Corp.	Enterprise Document Management	$249	905-819-1173
veryWare Development Corp.	Enterprise Time Capture	$149	905-819-1173
reemyers Design	Job Cost for Excel	$50	916-533-9365
tuit	QuickBooks Pro	$195	415-944-6000
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licrosoft	Excel, Word, Project	$339-$469	800-426-9400
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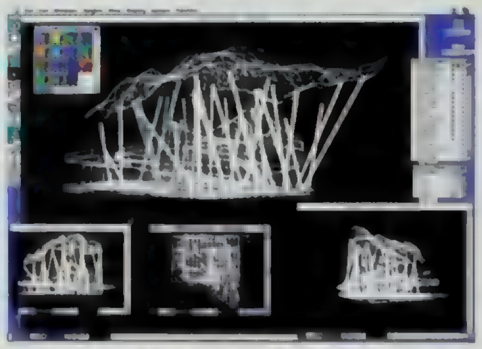
amsara Ltd.	Clerk of the Works	$995	208-263-3543
atori Software	Components Job Cost/Time Billing	$1,495	206-443-0765
caramella & Hoofnagle	Managing Director, Partner	$1,500-$2,500	609-424-2100
ynapse Software, Inc.	GC/Works	$475	800-420-2521
SP Software	Filevision IV	$119	714-731-1368
rtle Creek Software	MacNail Modules	$100-$295	607-272-1008

Multimedia Presentations and QTVR

Brown Consulting, Atlanta, Georgia

Alan Brown has been creating "a lot of QuickTime VRs." Using form•Z as the 3D modeling software and Electric Image as the animation and rendering software. Brown creates drawings of a space and then imports these images into Apple's QuickTime VR (QTVR) software. The QTVR software creates a navigable 3 dimensional view of the room. "My clients are wowed by it. Once I design the room in 3D, I can create VR's from any location and give everyone a view of the design from their vantage point."

For Brown, "QTVR is the perfect tool for 3D visualization and because Apple's QTVR technology will run on both Macintosh and Windows machines. "Anyone with a PC can view it. QTVR is an amazing new technology to add to my multimedia production capabilities" explains Brown. "I designed several signs for a company and then created a QTVR view that enables the client to stand at the front door and see what the sign will look like from the entrance to the store." That company is now interested in designing their entire store using QTVR.

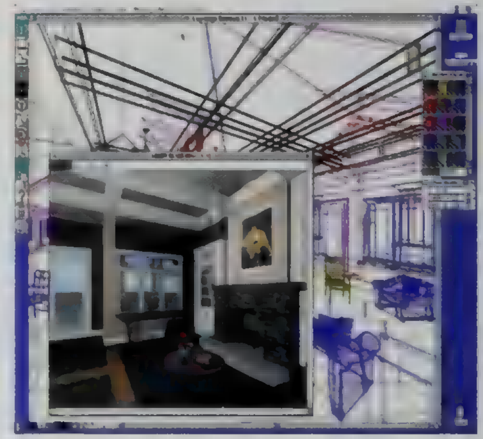


This model of the "Atlanta Pavillion," was modeled in form•Z and then used to derive plans and sections for construction documents.

Architect: Scogin, Elam & Bray (Brown Consulting, Computer Consultant)

Alan is collaborating with, and training other architectural firms in the use of QTVR. "A lot of the projects I am involved in must be done quickly. With two people in two days, we can create a very nice presentation that is quite effective in communicating design ideas."

Brown believes that one of the advantages of using a Macintosh is the variety of creative tools available. The consistent user interface of many software programs available on the Macintosh makes experimenting with new tools easier and the innovation of new methods for design possible. For example, Brown may start with a drawing in Adobe Illustrator or Blueprint, import the file into form•Z for 3D modeling, and then render the results in Electric Image. For a more complex project he'll use MiniCAD and then export a DXF file into form•Z.



This image of the Hospice Lagrange Lobby was modeled in form•Z and then rendered using Electric Image Animation. The animation of the interior and exterior of this project was shown to potential donors.

Architect: Nix Mann Perkins & Will (Brown Consulting, Computer Consultant)

Brown has consulted with a number of firms, who design in plan and elevation and then try to produce 3D models after the fact. "They first use CAD equipment and then want to "do something neat" with the building. It isn't until they see the 3D views, that they learn what the building really looks like." Brown suggests developing the design in 3D from the beginning of the project.

"Architecture is not a linear process." The flexibility of the Apple system allows a designer to begin in either 2D or 3D, explore 3D forms quickly, and then work in 2D, drawing plans and elevations. The Macintosh can allow architects to easily transfer design ideas into working drawings.

RESOURCES...

DRAWING & SCHEMATIC DESIGN:

Adobe Systems, Inc.	Adobe Gallery Effects	$149	800-628-2320
Adobe Systems, Inc.	Adobe Illustrator	$595	800-628-2320

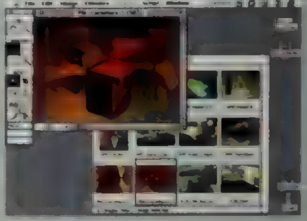
Adobe Photoshop
$895
Adobe Systems, Inc.
Phone: (800) 628-2320

Adobe Photoshop is the industry standard for image processing software. It can be used to retouch digital photographs, combine CAD images and photographs, or create original artwork

Alias Research, Inc.	Sketch	$695	800-465-0868

QuickTake 150
$745
Apple Computer, Inc.
Phone: (800) 776-2333

The QuickTake 150 is a digital camera which can capture 640 x 480 pixel images in 24-bit color. It is particularly useful when quick access to photographs is important such as for construction observation reports, site analysis, model photography, etc.



[illegible]	Digitizing Tablets	$150 - $535	714-821-2000
[illegible]	Painter	$549	800-297-2665
[illegible]	Squiggle	$99	800-878-7736
[illegible]	FreeHand	$389	800-288-4797
[illegible]	UpFront	$299	800-379-3729
[illegible]	Digital tablet: ARTZ II	$539	360-750-8882
[illegible]	amapi	$300	415-928-6960

If you can imagine the shape,
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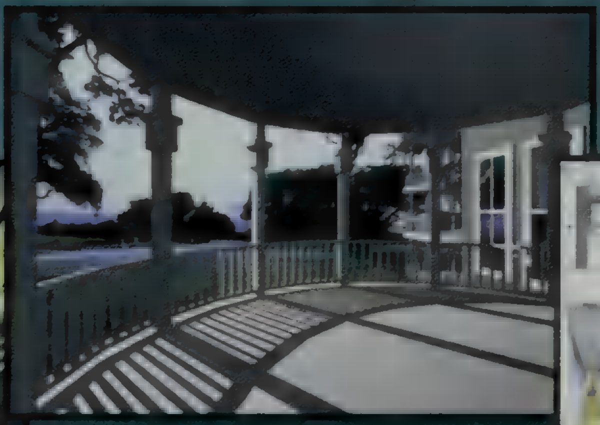
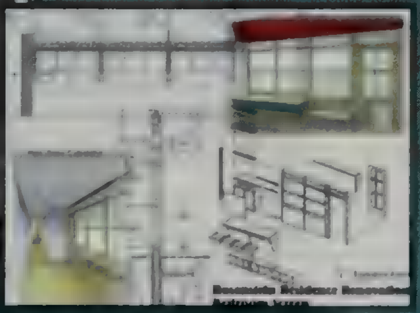
the 3D form synthesizer

- Model designs with ease and versatility, whatever your profession or style of design may be.
- Sketch your ideas, then explore and articulate your creations with accuracy and detail, using a design tool with unparalleled capabilities and a range of modeling tools not found in any other software package.
- With many continuously updated import/export formats, form•Z models can easily be transported to other rendering and animation applications running on a variety of platforms.



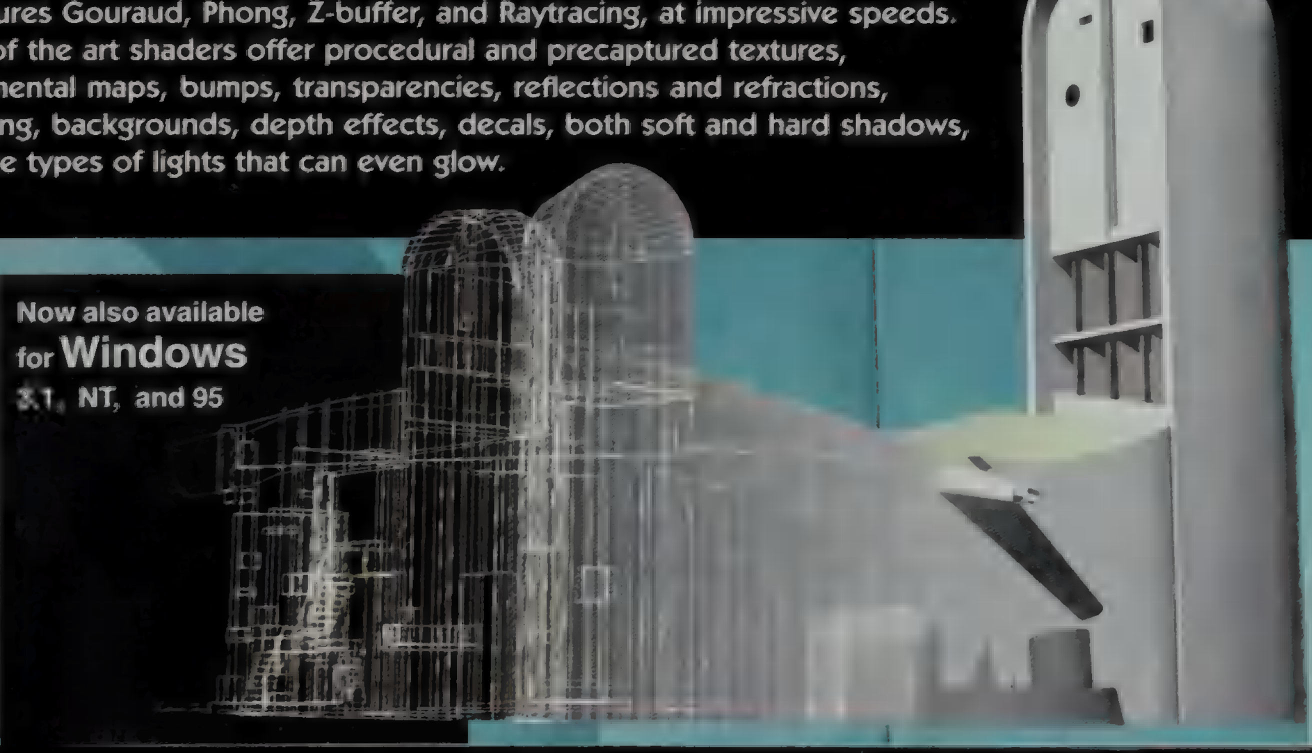


CREDITS: From left: Piano by M. Del Grosso;
[illegible] by Teresa Williams (EI);
[illegible] by David Teich ([illegible]);
[illegible] by H. Hambright; Rosenstein Residence
by Greg Randal; Le Corbusier's Ronchamp by M. [illegible]
Unless otherwise noted, all models rendered with form•Z RenderZone
Ad [illegible] by Alberto [illegible]

RenderZone

is the version of form•Z that offers photorealistic rendering, and allows you to complete your project without ever leaving form•Z.

- It features Gouraud, Phong, Z-buffer, and Raytracing, at impressive speeds.
- State of the art shaders offer procedural and precaptured textures, environmental maps, bumps, transparencies, reflections and refractions, antialiasing, backgrounds, depth effects, decals, both soft and hard shadows, and three types of lights that can even glow.



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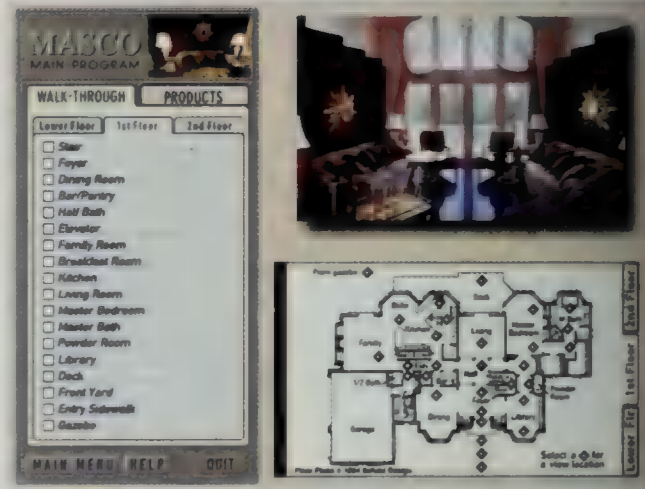
Circle 18 on inquiry card

Apple QuickTime VR

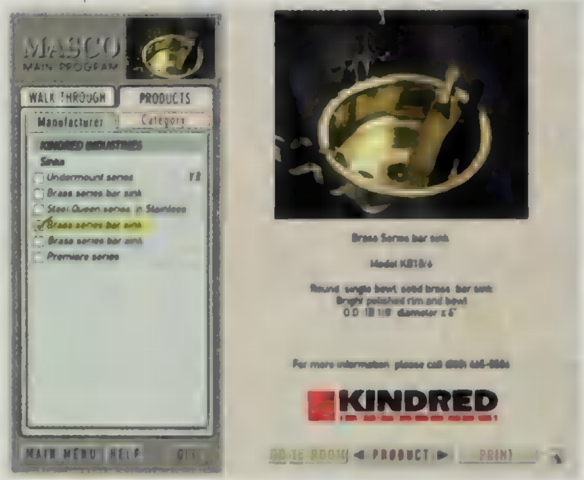
RDC Interactive Media, Inc., Palo Alto, California

In addition to changing the way architects design, new computer technology is changing the way we receive and view new product information. This architectural example of an implementation of Apple's QuickTime VR technology was a major feature at MacWorld in San Francisco, was a hit at the National Association of Home Builder's Show in Houston, and has received regional television and newspaper coverage. This project fully demonstrates the capability of QTVR as a tool for viewing existing spaces. Working with the support of Apple Computer, Inc., RDC Interactive Media produced a virtual tour on CD-ROM, of an existing 8,000 square foot house in Columbia, Maryland for Masco Corporation, a world class manufacturer of building products.

An innovative and intuitive interface allows the viewer to navigate to over 60 locations in the house in three different ways: using the cursor in the VR window, clicking on designated locations on the floor plans, or selecting from a list of rooms. The CD also contains product information on over 50 products installed in the showhome and several "object VRs" which enable the user to view a product from any angle. The Masco Virtual Reality ShowHome CD-ROM is available by calling (800-241-2537).



This screen shows the interface developed for the Masco VR Showhome with three ways of navigating 1.) list of rooms 2.) floor plans 3.) VR-window.



In addition to being able to navigate the 8,000 square foot house, product information is also available for over 50 products

> *"Quick Time VR is the killer application that architects have been waiting for."*
>
> \- Terry Beaubois

RESOURCES...

3D VISUALIZATION - CREATING AND VIEWING 3D OBJECTS AND SPACES:

Apple Computer, Inc.	Quick Draw 3D	Call	800-776-2333
Artifice	Design Workshop	$459	503-345-7421
Ashlar Inc.	Vellum 3D	$1,495	800-877-2745

QuickTime VR
Apple Computer, Inc.
Phone: (800) 776-2333

QuickTime VR is a new technology from Apple which enables users with the appropriate software to create virtual navigable environments from a series of rendered images or photographs.

form•Z & form•Z
RenderZone
$1,500 & $1,995
auto•des•sys Inc.
Phone: (614) 488-9777

form•Z is a sophisticated solid modeling application. True Boolean operations, meshes, splines and other high-end capabilities are supported permitting the creation of any shape. form•Z RenderZone includes texture mapping and ray tracing. The RenderZone version is $1,995.

[illegible] Byte Corporation	Sculpt 3D	$495	512-795-0150
[illegible] Image, Inc	ectricImage Animation System 2.5	$7,495	818-577-1627
[illegible] USA, Inc	[illegible] World	$199	800-622-7568
[illegible], Inc	[illegible] Dream Designer	$99	800-846-0111
[illegible] Corporation	[illegible]us Galleries	$39	800-847-8871
[illegible] Corporation	[illegible]tus VR	$99	800-847-8871
[illegible] Corporation	[illegible] WalkThrough Pro 2.5	$495	800-847-8871

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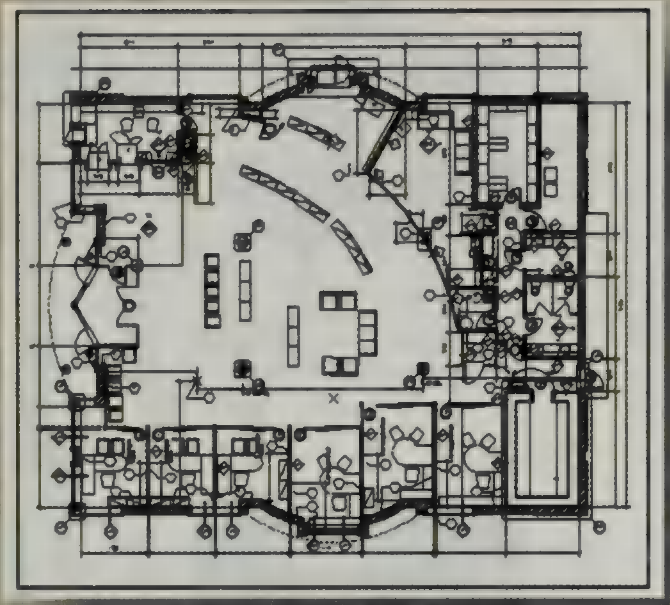
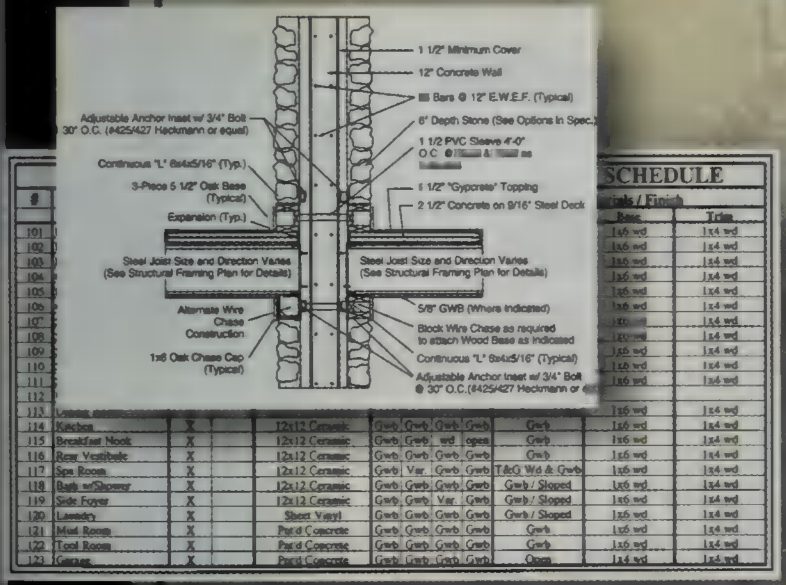
- ✓ A program you can try... RISK-FREE




1 1/2" Minimum Cover
12" Concrete Wall
Bars @ 12" E.W.E.F. (Typical)
6" Depth Stone (See Options In Spec.)
1 1/2 PVC Sleeve 4'-0" O.C.
Adjustable Anchor Inset w/ 3/4" Bolt 30" O.C. (#425/427 Heckmann or equal)
Continuous "L" 6x4x5/16" (Typ.)
3-Piece 5 1/2" Oak Base (Typical)
Expansion (Typ.)
1 1/2" "Gypcrete" Topping
2 1/2" Concrete on 9/16" Steel Deck
Steel Joist Size and Direction Varies (See Structural Framing Plan for Details)
Steel Joist Size and Direction Varies (See Structural Framing Plan for Details)
Alternate Wire Chase Construction
1x6 Oak Chase Cap (Typical)
5/8" GWB (Where Indicated)
Block Wire Chase as required to attach Wood Base as Indicated
Continuous "L" 6x4x5/16" (Typical)
Adjustable Anchor Inset w/ 3/4" Bolt @ 30" O.C. (#425/427 Heckmann or

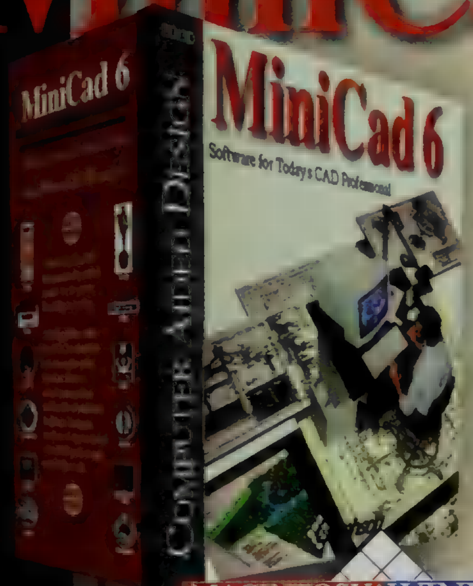
SCHEDULE

#										Base	Trim
101										1x6 wd	1x4 wd
102										1x6 wd	1x4 wd
103										1x6 wd	1x4 wd
104										1x6 wd	1x4 wd
105										1x6 wd	1x4 wd
106										1x6 wd	1x4 wd
107										1x6 wd	1x4 wd
108										1x6 wd	1x4 wd
109										1x6 wd	1x4 wd
110										1x6 wd	1x4 wd
111										1x6 wd	1x4 wd
112											
113	[illegible]									1x6 wd	1x4 wd
114	Kitchen	X		12x12 Ceramic	Gwb	Gwb	Gwb	Gwb	Gwb	1x6 wd	1x4 wd
115	Breakfast Nook	X		12x12 Ceramic	Gwb	Gwb	wd	open	Gwb	1x6 wd	1x4 wd
116	Rear Vestibule	X		12x12 Ceramic	Gwb	Gwb	Gwb	Gwb	Gwb	1x6 wd	1x4 wd
117	Spa Room	X		12x12 Ceramic	Gwb	Var.	Gwb	Gwb	T&G Wd & Gwb	1x6 wd	1x4 wd
118	Bath w/Shower	X		12x12 Ceramic	Gwb	Gwb	Gwb	Gwb	Gwb / Sloped	1x6 wd	1x4 wd
119	Side Foyer	X		12x12 Ceramic	Gwb	Gwb	Var.	Gwb	Gwb / Sloped	1x6 wd	1x4 wd
120	Laundry	X		Sheet Vinyl	Gwb	Gwb	Gwb	Gwb	Gwb / Sloped	1x6 wd	1x4 wd
121	Mud Room	X		Pat'd Concrete	Gwb	Gwb	Gwb	Gwb	Gwb	1x6 wd	1x4 wd
122	Tool Room	X		Pat'd Concrete	Gwb	Gwb	Gwb	Gwb	Gwb	1x6 wd	1x4 wd
123	Garage	X		Pat'd Concrete	Gwb	Gwb	Gwb	Gwb	Open	1x4 wd	1x4 wd

"We like MiniCad for its ease-of-use, together with the quality of product we can produce with it. I have some experience with AutoCAD,™ and I find MiniCad just so much easier. When we went from the drawing board to CAD, choosing MiniCad was a big plus. I think the world of it!"

Monty Anderson
MJA Design Ltd.
Chesapeake, VA

MiniCad® 6



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From the Autobahn to the Infobahn, Apple technology puts the BMW Z3 roadster on the world's fastest highway.

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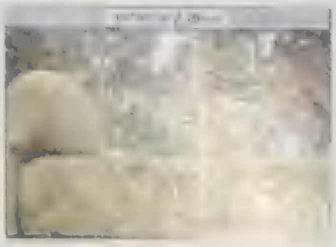
Get Inside the BMW Z3 with QuickTime VR

With [illegible] Apple technology such as QuickTime VR, the BMW Z3 [illegible] turned into a virtual roadster [illegible]

More multimedia Internet sites are created on Macintosh than on any other computer.



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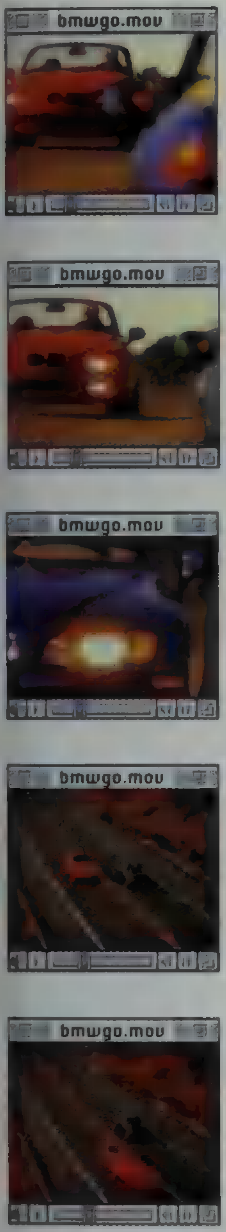

Q :Time movies. Digital videos so realis-
ti at the only thing missing from taking
th 3 roadster for a test-drive is the wind
i ur hair.

T ve up their web site, BMW uses the
A Internet Server Solution, one of the
ea t ways to put a site on the Net and
p rful enough to handle over 200,000
b er day.

Once again, BMW showcases some of the world's best technology.

Only in this case we're talking about BMW's amazing new web site. The web site that actually lets you test-drive the Z3 roadster in the comfort of your living room. And how did BMW put one of the most innovative web sites on the Internet? With Apple technology, of course. As Jim McDowell, VP of Marketing at BMW of North America, puts it, "*We wanted our web site to have the same performance and excitement as our BMW products. Apple was the perfect partner.*" So visit www.bmwusa.com to check out some technology that really moves. Oh yeah, and while you're at it, check out the car.

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Digital Design

DES Architects & Engineers, Redwood City, California

In addition to being Associate in Charge of Digital Design at DES Architects & Engineers in Redwood City, California, John Marx is also teaching "Digital Design" at the University of California at Berkeley's Department of Architecture. His lectures at Berkeley emphasize the ability of digital design to enhance the design process. Marx has found that digital design offers architects the ability to quickly edit ideas and drawings and to easily design in 3 dimensions.

One of the software programs in the DES arsenal is Adobe Photoshop. Marx uses Photoshop, not only to combine photographic and computer generated images into presentation graphics, but also as an architectural design tool. "I design much more 3 dimensionally using Photoshop. I use Photoshop as a digital sketching tool – not just as a way to paste a cloud behind a building."

After rendering a view of a building in Photoshop, it is possible to quickly change mullions and other architectural features. Realistic images of alternative building colors and textures may also be quickly generated. Using Photoshop, architects can easily generate "before and after" images of remodeling or alteration projects.

DES has created many impressive images using a digital "collaging" techniques by combining several images from different sources with photo-realistic backgrounds. Marx and his staff at DES have even produced their own CD-ROM that features these presentations.

A digital rendering of Pacific Athletic Club.

A presentation drawing of the Pacific Athletic Club project by DES Architects.

> *"I use Photoshop as a digital sketching tool – not just as a way to paste a cloud behind a building."*
>
> -John Marx

RESOURCES...

PRESENTATIONS & DESKTOP PUBLISHING:

Adobe Systems, Inc.	Adobe PageMaker	$895	800-628-2320
Adobe Systems, Inc.	Adobe Persuasion	$395	800-628-2320
Adobe Systems, Inc.	Adobe Premiere	$795	800-628-2320
Allegiant Technologies, Inc.	Allegiant SuperCard 2.5	$399	800-255-8258
Apple Computer, Inc.	HyperCard	$99	800-776-2333
Frame Technologies	FrameMaker	$895	800-628-2320
Gold Disk	Astound	$170	408-982-0200
Macromedia, Inc.	Director	$1,199	800-288-4797
Proxima Corporation	Desktop Projector 2810	$7,495	800-447-7692
Proxima Corporation	Proxima Ovation+ 920	$10,995	800-447-7692
Stellar Solutions	Video VI with Video Companion	$450	707-579-1733

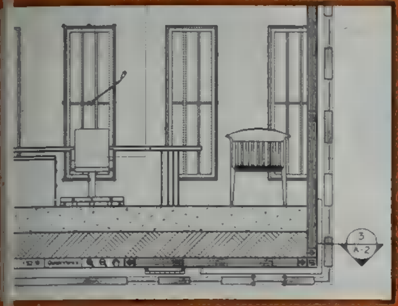
WORKING DRAWINGS, CAD & ENGINEERING:

American Small Computers, Inc.	DesignCAD 2D/3D Macintosh	$499	918-825-4848
Archforms, Ltd.	MaxBeam	$149	800-958-ARCH
Archforms, Ltd.	MaxQuake	$149	800-958-ARCH

Detail Manager
$195
Architectronica
[illegible] (310) 376-7054

Detail Manager is a comprehensive system for storing and managing details in a detail library. It can be used with most Macintosh CAD programs including PowerCAD, MiniCAD, ArchiCAD and other applications such as Excel.

[illegible]	Sheet Planner	$50	310-376-7054
[illegible]	Argus MeshMaker Pro	$1,000	516-931-4725
[illegible]	GAIA Software	$2,000	201-224-2025
[illegible]	New Architrion VI6	$4,495	800-561-0522



RK IN PLAN, SECTION, & ELEVATION

ct, move, and edit elements in section levation views • changes are updated floorplan, 3D view, and bill of terials

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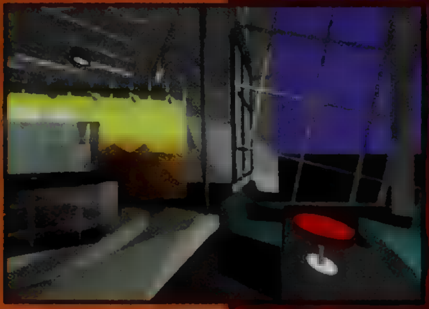
Automatic hip, vaulted, and domed roof generator follows plan or any outline • Cut openings at any angle • Freely set fascia angle, thickness, and materials



OFFER CLIENTS A "VIRTUAL TOUR"

QuicktimeVR maker incorporated in ArchiCAD (Macintosh version only) • Enhanced QuickTime® 3D capabilities to produce object movies with multiple scenes

MODEL CURVILINEAR FORMS

Splines and Bezier curves can be transformed into walls, slabs, or roofs, or used for drafting • Create true curved walls, slabs and roofs with curved openings

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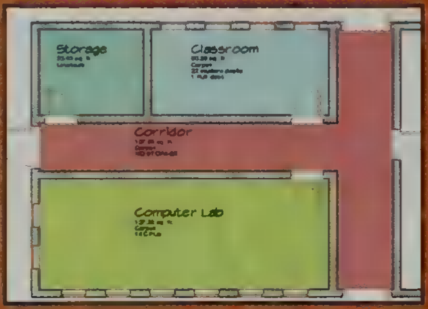
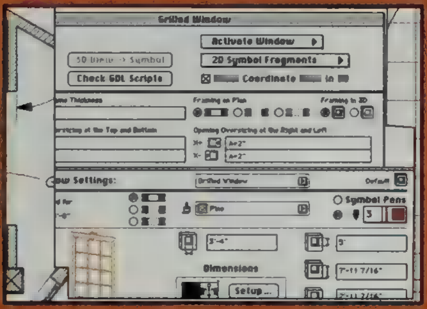
textures to any surface • Dozens of ures included or add your own • erate sunstudy movies for any location time period • Faster shading and 3D eration recalculates only changed nents



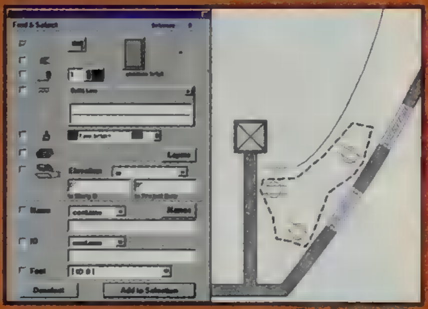
OPEN THE DOOR TO FACILITIES MANAGEMENT

Zone feature automatically recognizes rooms and zones & label by color and "stamp" • Properties import/export object attributes • Two way connection to external databases and spreadsheets • Tracks objects and finishes



CUSTOMIZE INTELLIGENT OBJECTS

Alphanumeric string variables • Parametric properties • View objects (such as stairs and flues) across all stories • Quantify object area and volume • Parametric cutting planes in GDL • New object browser with dynamic 3D preview



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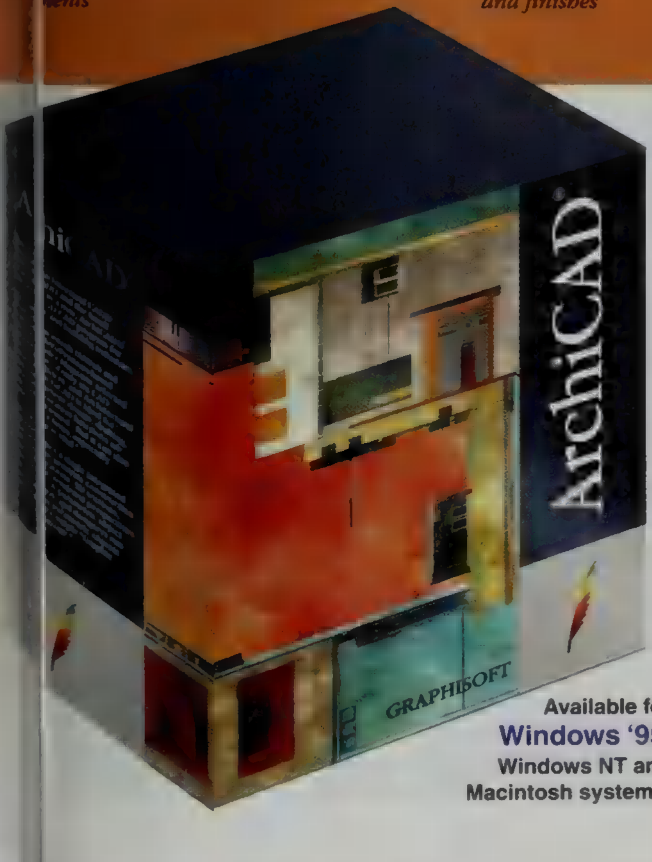
Enhanced Intelligent Cursor detects tangent, perpendiculars and line intersections • "Find & Select" dialog to select by any combination of criteria • Polygonal marquee tool • Pop-up editing options at the tip of your cursor • Direct access to StairMaker, ArchiSite applications from inside ArchiCAD



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Circle 20 on inquiry card

A "Computer-Aided Practice" Resource

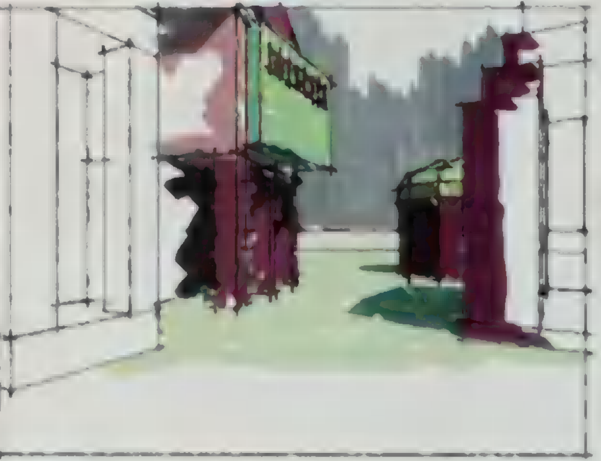
Architectronica, Redondo Beach, California

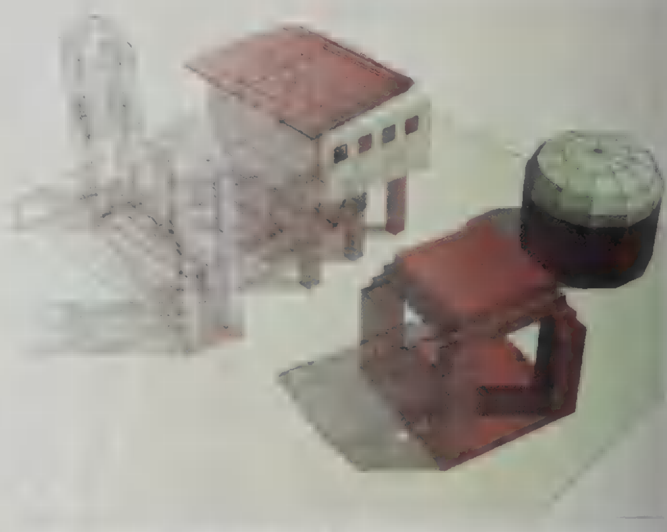
Though architecture can be a competitive sport, there are professionals that make themselves available as "resources" from whom we can benefit. Architectronica, founded by Barry Isakson, AIA in 1988 specializes in providing computer-aided practice consulting services using Macintosh computers. Isakson has been involved in the architecture and construction industries since 1971, and has used Macintosh computers in architectural practice since 1984. Isakson is a nationally-recognized expert on all aspects of computer-aided practice, including CAD.

In addition to offering individual consulting services, Architechtronica also offers a series of seminars around the country on topics which include Drafting Automation, Macintosh in Architectural Practice, and Computer-aided Presentation.

As a Macintosh architecture wunderkind, Isakson has developed a collection of software tools for architects and designers interested in automating their work and also publishes a quarterly newsletter that educates Macintosh users on computer tools and computer aided practice.

The editors would like to thank Barry Isakson for providing the DXF Translation Tips and the reviews of featured products.





These abstract forms were quickly generated by Isakson to demonstrate a three dimensional view of spaces and objects.

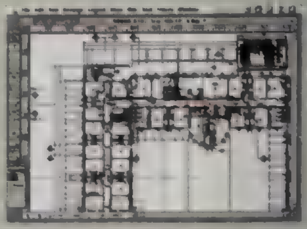
> *"Computer-Aided Practice is not an event, it is a process. It is not about buying computers, it is about using them."*
>
> \- Barry Isakson

WORKING DRAWINGS, CAD & ENGINEERING CONTINUED...

Bentley Systems, Inc.	Microstation	$3,950	610-458-5000
CADSoft Solutions, Inc.	CSI-CADD	$795	817-284-3609
Canadian Home Builders Association	HOT2000 Version 7.1	$325	613-230-3060
CIGRAPH s.r.l.	cumTerra	$1,800	011-39-41-932388
CIGRAPH s.r.l.	HouseMap	$900	011-39-41-932388
ComGrafix, Inc.	MapGrafix Mapping System	$2,995	813-443-6807
COMPUneering Inc.	Structural and Landscape software	Call	905-738-4601
Daystar Software, Inc.	RetainWall	$195	816-741-4310
Desktop Architect	Desktop Architect 2.0	$199	614-469-9906
Desktop Architect	Desktop Architect 2.0+ (MiniCad Version)	$199	614-469-9906
Eclectus, Inc.	CMIS 3.0	$3,800	800-625-5972
Eclectus, Inc.	Punch Box	$295	800-625-5972

PowerCad
$795
Engineered Software
Phone: (910) 299-4843

PowerCad is 2D CAD software which can be used to create 2D production drawings and details. WildTools, which includes a "squiggle" command, is available for $150.



Engineered Solutions	MacCulvert	$100	407-349-9985
Engineered Solutions	MacFlood Route	$200	407-349-9985
[illegible]	MacStorm Sewer	$550	407-349-9985
[illegible]	MacHeliodon v.3.0 *	$32	604-682-6929
[illegible]	ArcView	$995	909-793-2853
[illegible]	ESLib Foundation Class Library	$195	303-702-9274
[illegible]	Architectural and Landscape Graphics	$50	916-533-9365
[illegible]	Future Graph Clipart Libraries	$49 – $99	800-LEARN-FG
[illegible]	Engineering Software	Call	408-464-1949

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When you sit down to draw, you want to have that old feeling of drawing on a piece of paper. You want to move about the drawing quickly, draw perfect lines, move around effortlessly, knock in windows and doors, detail things in a heartbeat and swiftly dimension the whole drawing. You don't want to fight with a computer.

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Drawings and Photograph by Robert T. Coolidge, AIA

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DXF Translation Tips

DXF (Drawing Exchange Format) file format is the most commonly used method for transferring information between different CAD programs. This usually means moving drawings between AutoCAD DOS or Windows and your Macintosh CAD program. There are two issues involved. The first is transferring the files from one platform to another. The second is translating the files from DWG to DXF and then from DXF to the format of your CAD software.

If your CAD program supports the DWG format (AutoCAD's native file format, then you need only transfer the files from one platform to another. This can be accomplished with floppy disks using utilities such as PC Exchange. All Macintosh computers running System 7.5 have PC Exchange installed and can read DOS format 3-1/2" floppy disks from PC users using DOS or Windows.

Macintosh CAD programs which can read DWG files directly include: ArchiCad (Graphisoft), Microstation (Bentley Systems), and AutoCAD R12 for Macintosh. Contact your CAD software provider to determine if the software you are using can read DWG files directly.

If your CAD program does not read DWG files, then you will need to have the party sending you the file, translate the file from the format of their CAD software to DXF. Once the DXF file is transferred to your system, you can then translate it from DXF to the format of your CAD program.

Translation Software

If your CAD program does not support reading and writing DXF files you will need to acquire some additional software. Translation software can usually be purchased directly from the publisher of your CAD software. If your CAD software publisher cannot provide you with translation software you may be able to use software such as CADMOVER to translate the files. CADMOVER is published by Kandu Software (703) 532-0213. Be sure to inquire whether your CAD program is supported.

Additional DFX Translation Tip information:

For the following additional information on DFX Translation Tips, go to the Apple website (http://www.technical.apple.com).

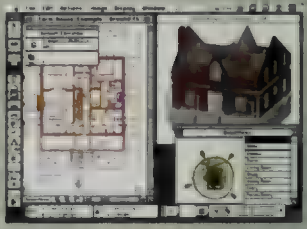
- Receiving DXF Files
- Export Instructions for AutoCAD Users *(Give these instructions to AutoCAD users who will be providing you with files)*
- Import Instructions for Macintosh Users
- Sending DXF Files

> *"Getting a file to firms that still use AutoCAD is more like sending a fax now."*
>
> \- Alan Brown

WORKING DRAWINGS, CAD & ENGINEERING CONTINUED...

ArchiCad
$4,450
Graphisoft
Phone: (800) 344-3468

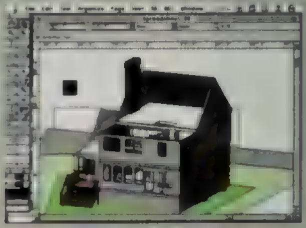
ArchiCad is sophisticated CAD software which integrates 2D production drafting, bill of materials, 3D modeling, rendering, and animation in a single application. Library objects are parametric. Lighting effects and texture mapping are supported. QuickTime movies and QuickTime VR environments can be created.



Graphsoft, Inc.	Blueprint	$225	410-290-5114

MiniCad
$795
Graphsoft, Inc.
Phone: (410) 290-5114

MiniCad is a powerful 2D drafting and design program with a built-in 3D modeling environment. Includes database and spreadsheet capabilities and a "Design & Drafting Toolkit" which offers over 2950 tools, commands, and templates. Create QuickTime movies and fly throughs. Export 3D models into high-end rendering programs.



Illumination Data Systems	DataLight 3	$69	405-340-3892
IMSI	TurboCAD	$145 - $295	800-833-4674
Intuitec Software Inc.	FrameMac Section Tables	$165	416-631-6603
Intuitec Software Inc.	Static Footing	$50	416-631-6603
Knowledge Revolution	Working Model v3.0	$2,500	800-766-6615
MapInfo Corporation	MapBasic for Macintosh	$795	800-327-8627
MapInfo Corporation	MapInfo for Macintosh	$1,295	800-327-8627
[illegible] AD	ModaCAD Design, ModaFINITY	$12,500	310-312-6632
[illegible] Duncan Architect	Ft-In Calc 2.6	$39	202-667-1494
[illegible] Engineering Design	Engineering Symbols Library	$89	612-937-5038
[illegible]	nuControl	$1595-$1995	617-444-7680
[illegible]	Tree Pro	$495	617-876-3876
[illegible]	EZ-EPS	call	212-249-5832
[illegible]	ConstructionMac! 3.1	$445	800-669-5191
[illegible]	Punch Box	$495	800-669-5191
[illegible]	Scaler•Mac	$199	800-669-5191

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DesignWorkshop is available from MacZone, MacWarehouse, and direct from Artifice. Model and Radiance rendering by Peter Horne, Univ. of Oregon. [1]Macintosh Sci and Eng. Report, [2]MacUser UK, [3]MacWEEK, [4]MacWorld.

800-203-8324 • 541-345-7421
541-345-7438 fax. Eugene, Oregon. **Artifice, Inc.**

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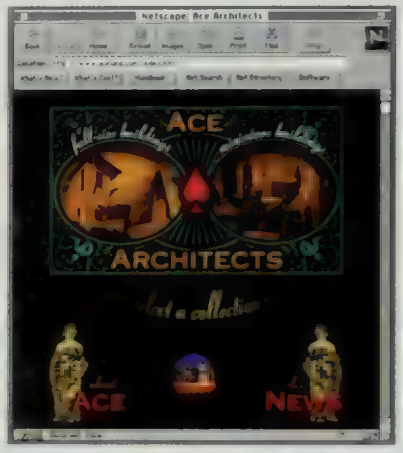
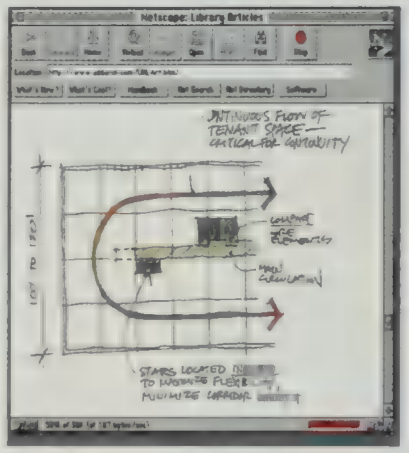
Architects Online

In last year's Macintosh & Architecture special section we urged architects to get online. Since then there has been an impressive number of architects with creative web sites. Here are just a few of the hundreds of the sites that feature architecture firms and universities.



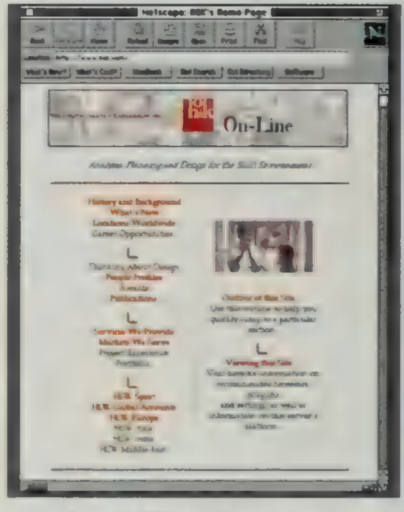
Ace Architects
Berkeley, California
http://aceland.com/aca/

This web site was developed by Brad Johnson Presents of Oakland, California and won first prize in the Advertising Category in Communications Arts magazine's prestigious annual design competition.


Netscape: Library Articles
CONTINUOUS FLOW OF TENANT SPACE — CRITICAL FOR CONTINUITY
STAIRS LOCATED TO MAXIMIZE FLEXIBILITY, MINIMIZE CORRIDOR

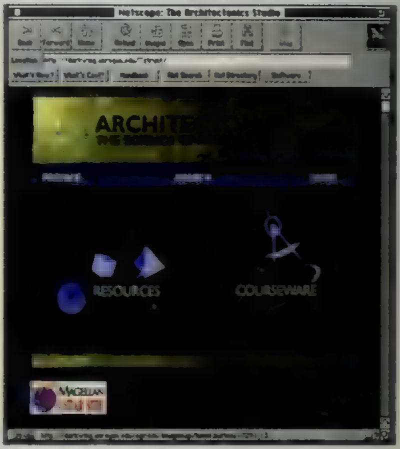
Add Inc.
Cambridge, Massachusetts
http://www.addarch.com/

Using the metaphor of the city, ADD Inc has created a web site that introduces potential clients to their staff and projects. Among other compelling graphics included in this site are these hand drawn sketches which reveal ADD Inc's incorporation of traditional media and new media. The sketches are from the article "Office Design for the Marketplace" written by Michael S. Hass, AIA.



Hellmuth, Obata+Kassabaum, Inc.
St. Louis, Missouri
http://www.hok.com/

HOK's comprehensive and elegant size includes information on completed projects, publications, and profiles of each HOK office. This site also features an easily navigated outline that allows users to quickly view information and images.



Chris Luebkeman
Department of Architecture
University of Oregon
http://darkwing.uoregon.edu/-struct/

Luebkeman is currently developing a course that will explore using the internet as an interactive teaching tool. His site includes a database of structural typologies, course outlines, case studies, and a fascinating look at the architecture of Hong Kong.

WORKING DRAWINGS, CAD & ENGINEERING CONTINUED...

RockWare, Inc.	Digitize for the Mac	$299	800-775-6745
SeaSoft Systems	SPMsim	$60,000	805-683-3002
Softin s.r.l.	MacSap	$3,800	011-39-6-44291061
StormWorks	OfficePRO WorkPlan	$32	919-286-6638
StormWorks	StormWorks DitchBuilder	$89	919-286-6638
StormWorks	Super SCS	$89	919-286-6638
Tap Software	Beam Builder	$69.95	800-245-5493
Terrace Software	bel Terre Plant Symbols	$89 - $295	617-396-0382
University of Oregon	Energy Scheming 2.5	$195	503-346-5647
Warren Design Vision	BeamCALCulator	$125	501-224-7434
Warren Design Vision	ConvertULATOR: Conversion Factors	$25	501-224-7434
Williams CadCo	Professional Series Drafting Symbols	$99 – $199	800-321-9193
[illegible] by Design, Inc	DATICA II	$65	800-527-7472

[illegible]

[illegible]	Plotters	$1500-$35,000	800-225-2667
[illegible]	NovaJet color plotter	call	619-452-0882
[illegible]	Plottergeist	$399	800-663-6222
[illegible]	PowerPlot	$599	800-663-6222
[illegible]	PowerPlot/LT	$799	800-663-6222
[illegible]	Plotters, Laser printers	call	208-396-6000
[illegible]	Mesa Graphics Plotter Utility	$125	505-672-1998
[illegible]	Mesa Graphics Terminal Utility	$195	505-672-1998

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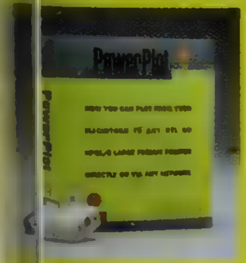

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PRINTING CONTINUED...

Microspot USA, Inc.	MacPlot DMA Electrostatic	$2,495	800-622-7568
Microspot USA, Inc.	MacPlot HP-GL/2 Inkjet	$595	800-622-7568
Microspot USA, Inc.	MacPlot Pen Plotter Professional	$399	800-622-7568
Microspot USA, Inc.	MacPlot Raster	$1,295	800-622-7568
Microspot USA, Inc.	MacPlot Raster Mono	$399	800-622-7568

TRANSLATING DOCUMENTS:

DataViz	Translators	$149	203-268-0030
Insignia Solutions	SoftWindows	$329 -$379	408-327-6000
Kandu Software Corporation	CADMOVER	$495	703-532-0213
Orange Micro, Inc.	PC Card	$750-$2200	714-779-2772
Reply	DOS Cards	$495 - $895	800-801-6898

STORING DATA:

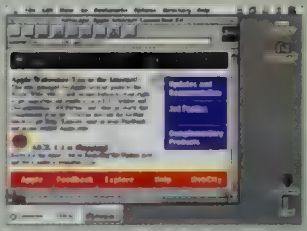
Dantz Development Corporation	Retrospect Remote	$449	510-253-3000
Kodak CD Imaging	Kodak Photo CD	call	800-235-6325
MicroNet Technology, Inc.	Hard disk storage peripherals	call	714-453-6000

ONLINE & NETWORKING:

Adobe Systems, Inc.	Adobe Acrobat	$195	800-628-2320
Adobe Systems, Inc.	Adobe Fetch	$149	800-628-2320

Internet Connection Kit
$50
Apple Computer, Inc.
Phone: (800) 776-2333

The Apple Internet Connection Kit is a set of customized Internet applications that have been configured to make connecting to the internet as easy as possible. Applications include Netscape Navigator, Fetch, Claris Emailer Lite and others.



Farallon Computing, Inc.	Networking System	call	510-814-5000
Global Village Communications	Modems		800-736-4821
Novell, Inc.	Netware/10 user	$2,495	800-638-9273
Spyglass, Inc.	Spyglass Mosaic	call	708-505-1010

CONSULTING SERVICES:

Architectronica	Macintosh Architectural Consultant	Call	310-376-7054
CDG	Macintosh Architecture Consultant	call	602-629-9752
InForm Systems	Consulting Services	call	415-323-4901

HARDWARE:

Radius, Inc.	Monitors	call	408-541-6100
Rasterops, Corp.	Monitors	call	408-562-4200
Sonnet Technologies	PowerBook FPU Upgrade for 520/540(c)	$299	800-786-6260
Sonnet Technologies	PowerBooster	$69	800-786-6260
Sonnet Technologies	QuadDoubler	$249 – $599	800-786-6260
Sony Corporation	Computer Peripherals	call	800-352-7669

APPLE COMPUTER, INC. RESOURCES:

Apple Technical Assistance 800-767-2775
(Technical support)
Apple fax back (24 Hours) 800-462-4396
(Product Information)
Apple Order Center 800-776-2333
(Product Purchasing/Upgrades)
Apple Assistance Center 800-776-2333
Apple Training Info 800-950-2442
Apple Programmers & Developers Association 800-282-2732
Apple Internet Servers
http://www.apple.com/ http://www.support.apple.com/ http://qtvr.quicktime.apple.com/

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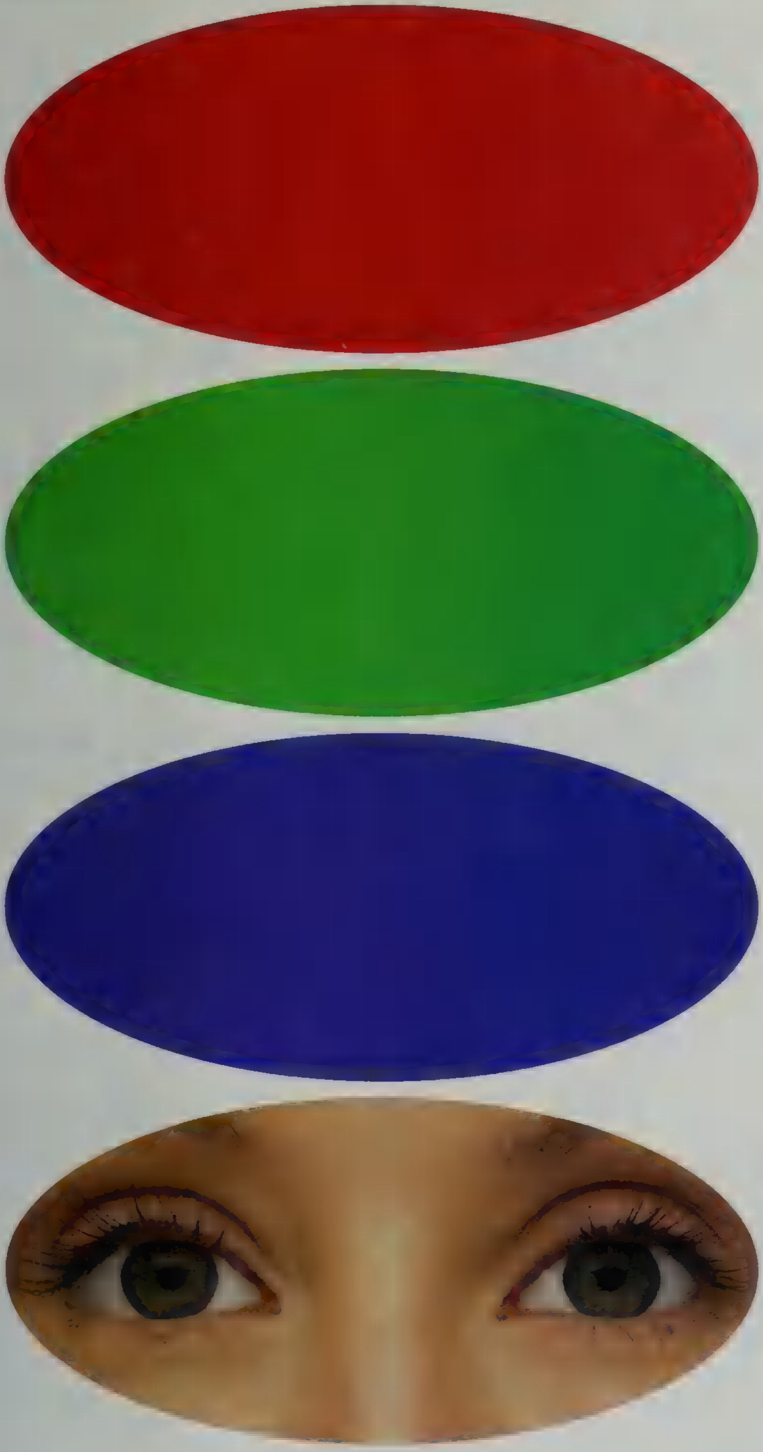

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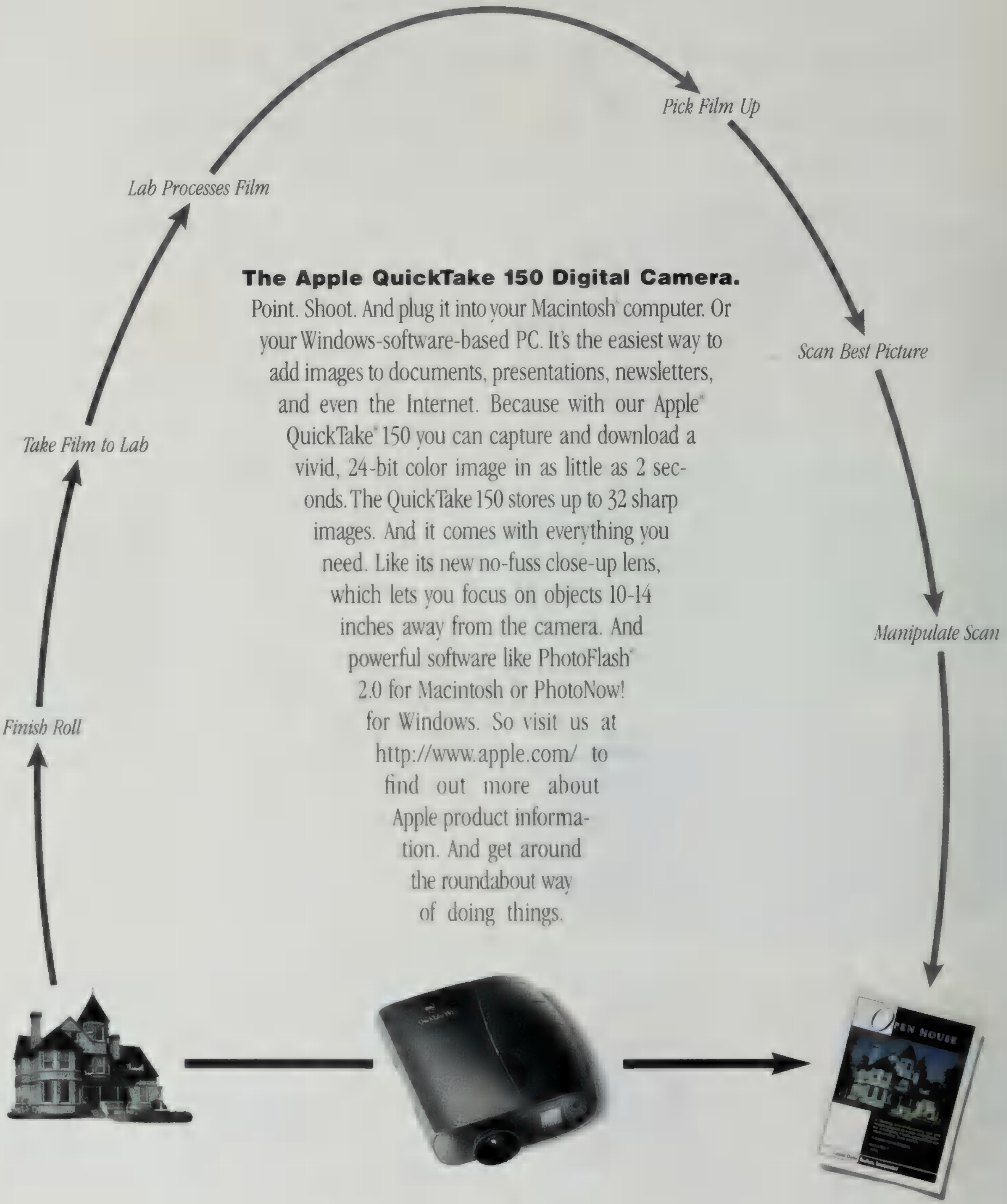

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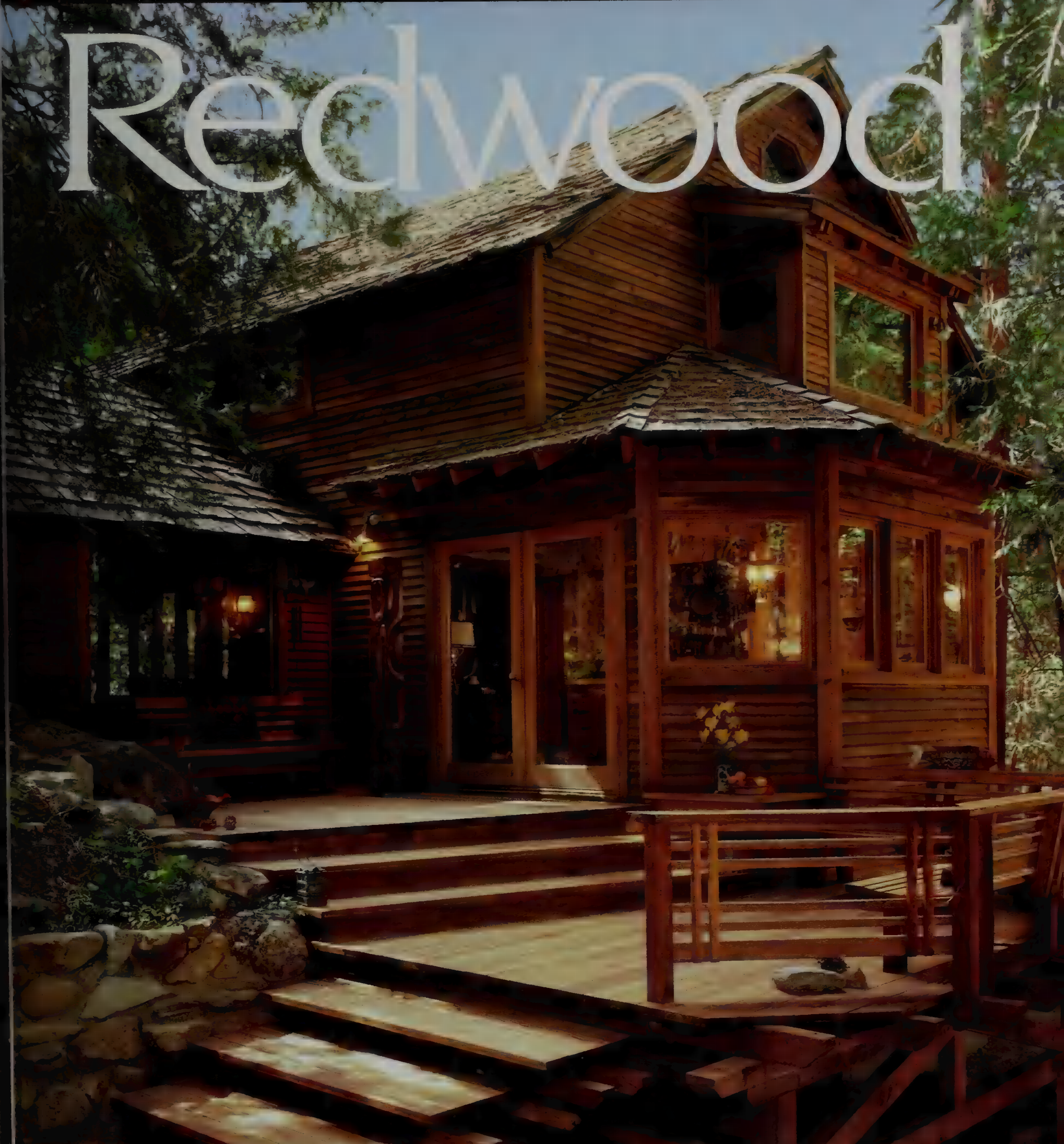

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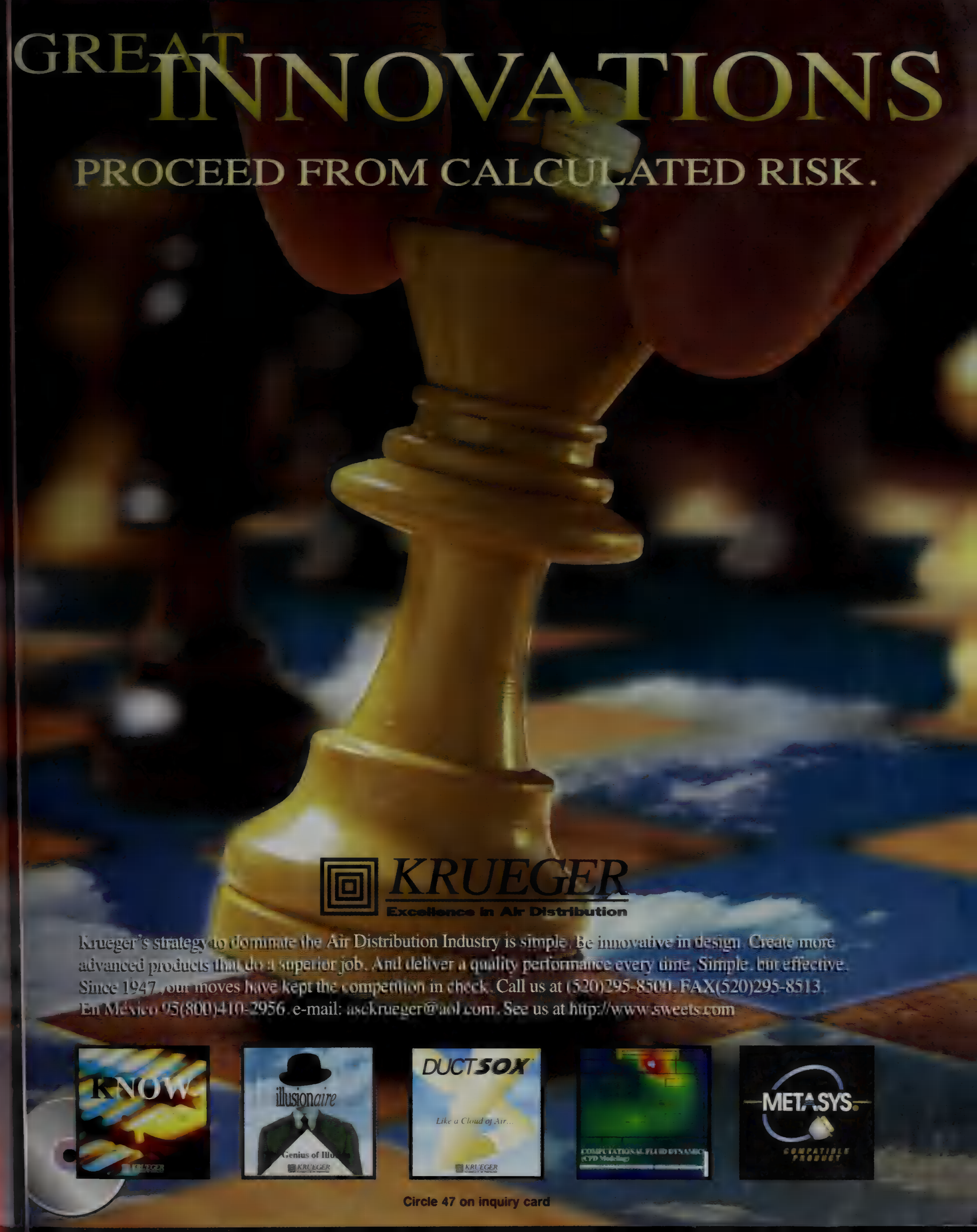

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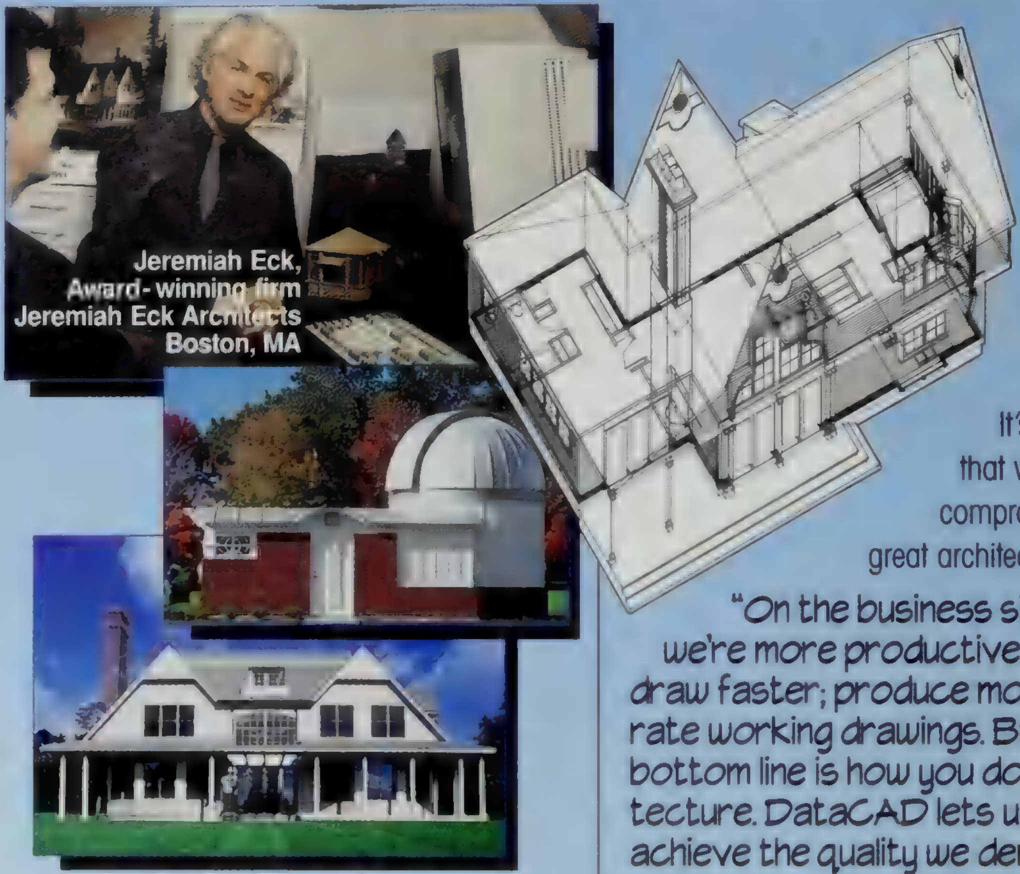
"I NEVER THOUGHT THAT DESIGNING ON A COMPUTER COULD LET US ACHIEVE THE QUALITY WE DEMAND"



Jeremiah thought computer-aided design would make his drawings look mechanical and limit creativity. Seeing a DataCAD demo changed his mind.

"We were surprised to see that computer drawings could be just as beautiful as our hand drawings. We'd never seen that depth from a CAD program."

Jeremiah expected computerizing to increase productivity. He didn't expect it to actually increase his design skill. "It's not just a tool for drawing. It's a tool that will not compromise great architecture."

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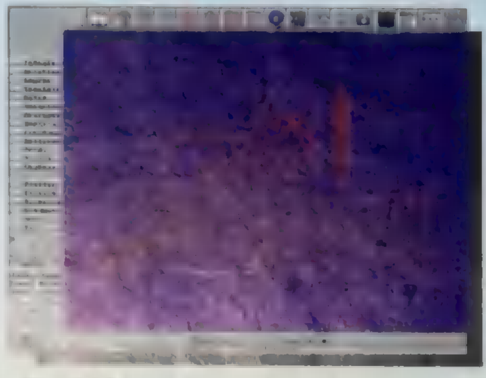

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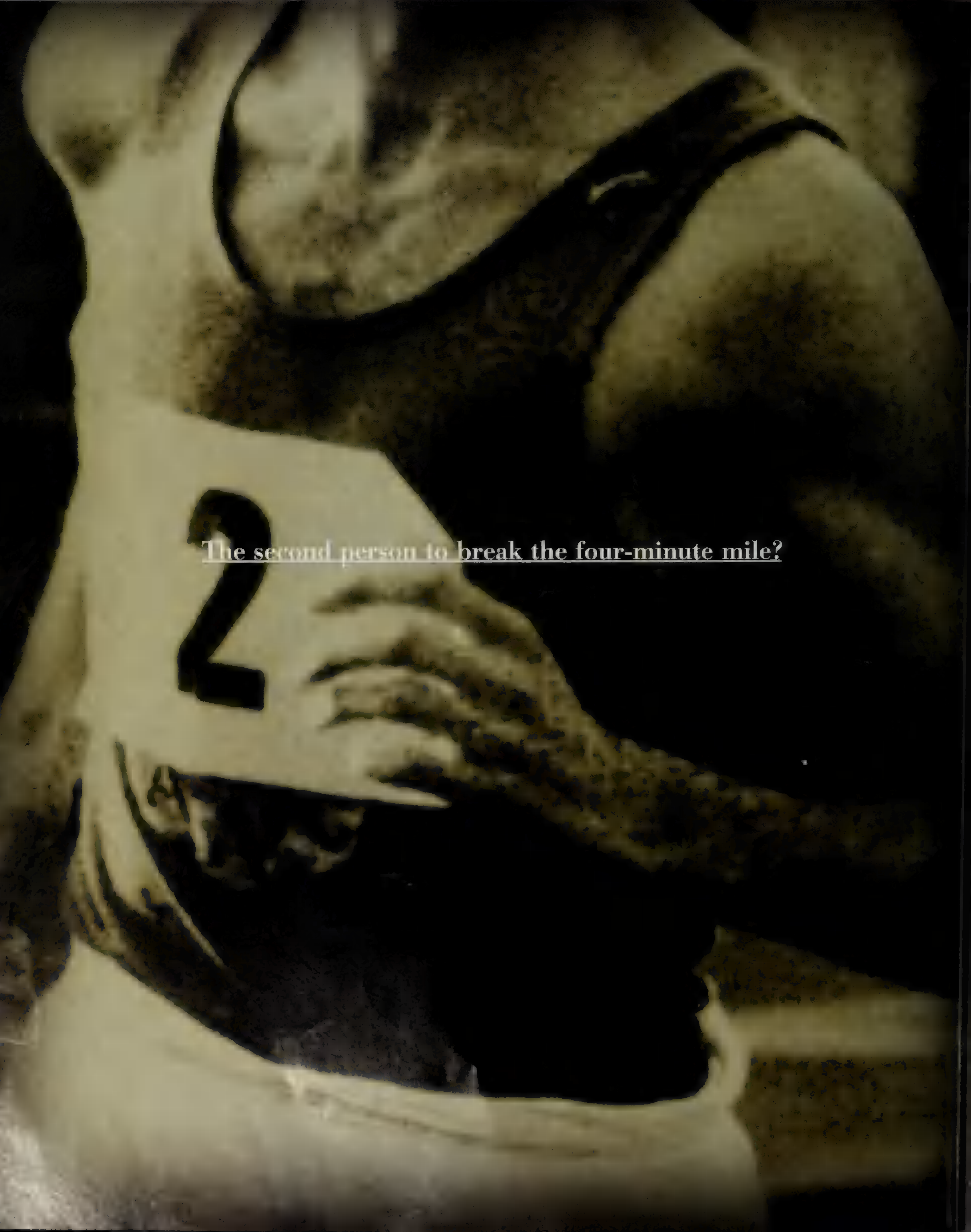
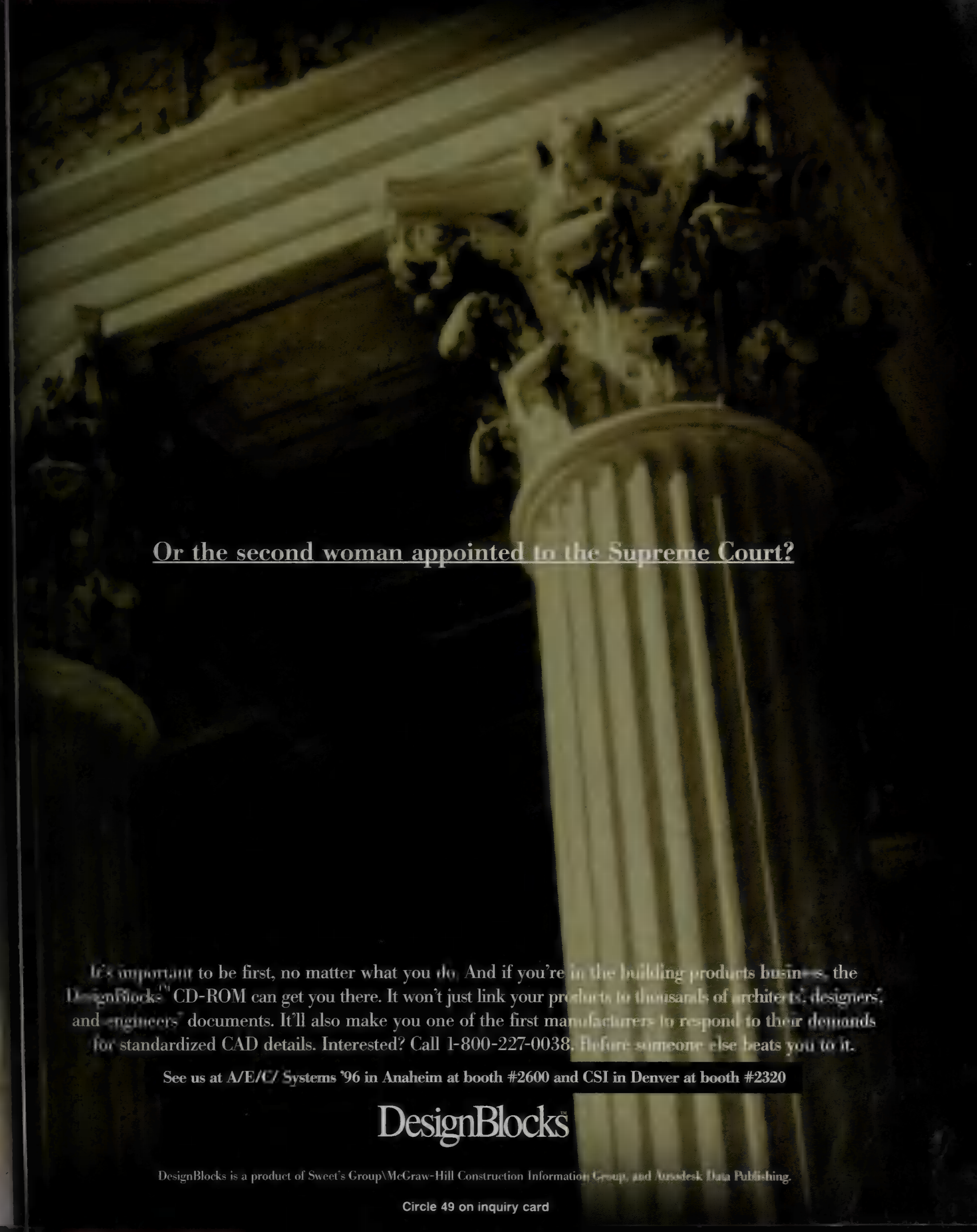
Quick. Can you name the second man on the moon?


2
The second person to break the four-minute mile?



Or the second woman appointed to the Supreme Court?

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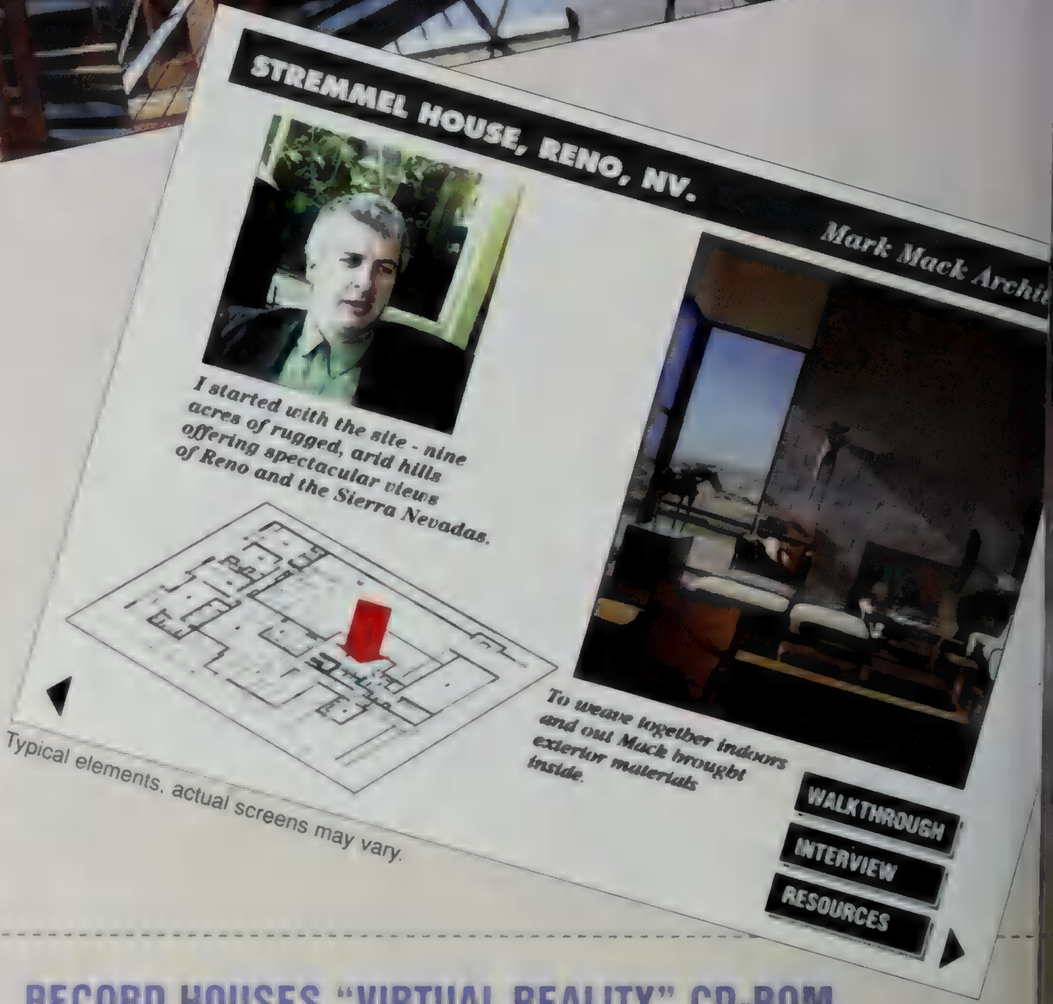

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Mark Mack Archit

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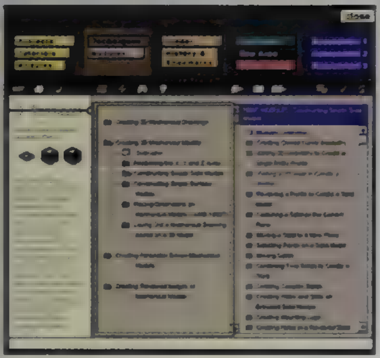

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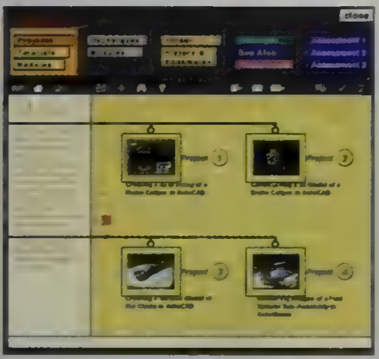

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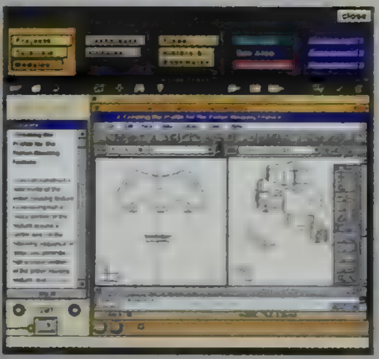

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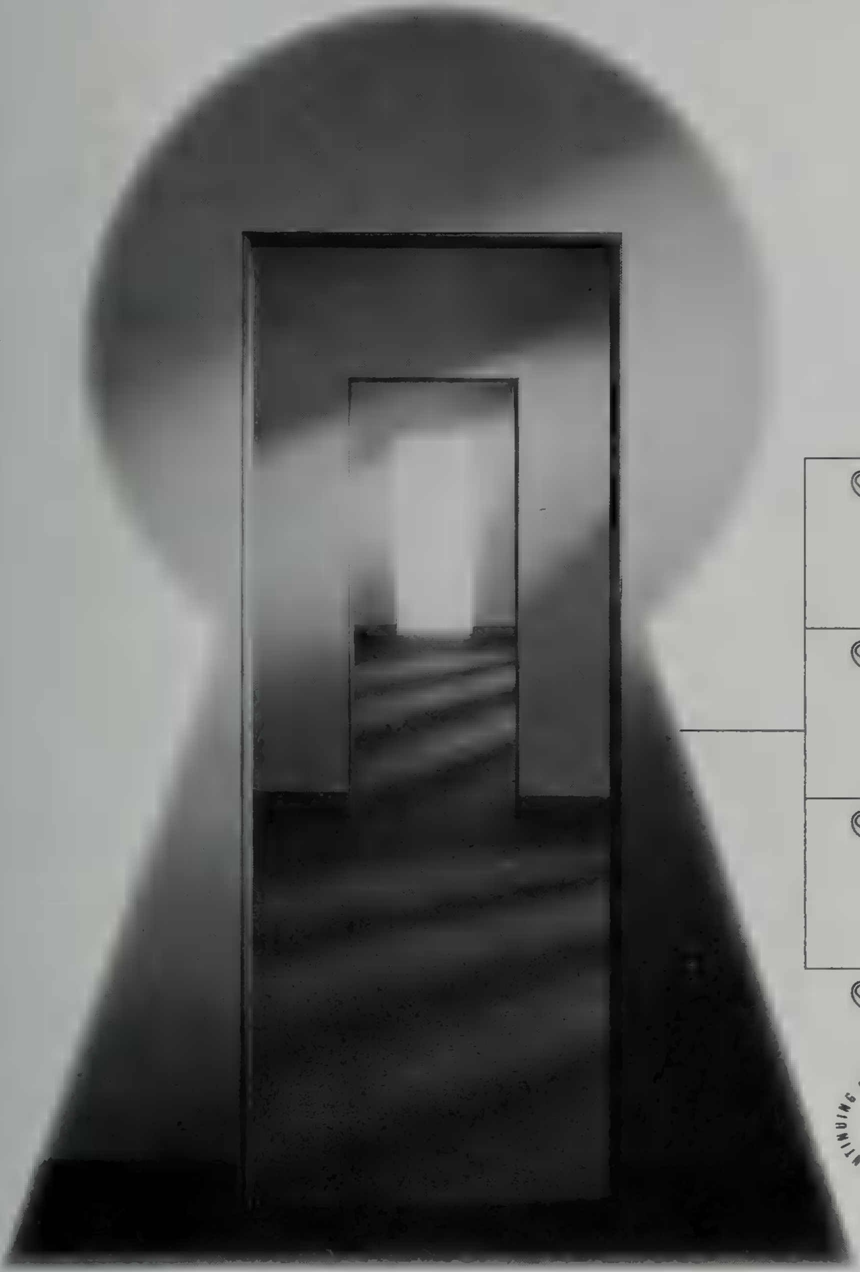

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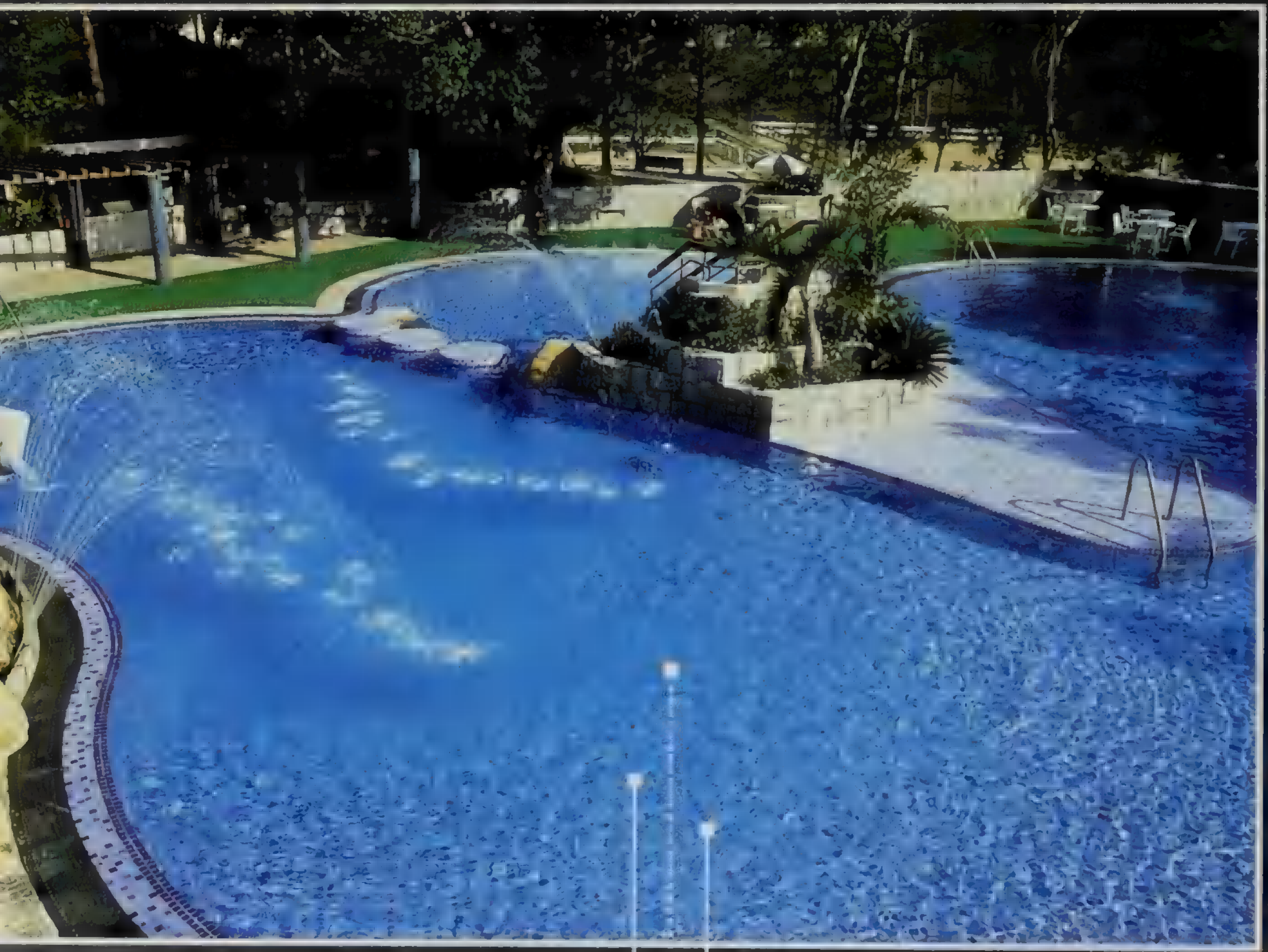

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AIA/Architectural Record Continuing Education

Questions

1. List some examples of spaces that were not typical in recreational facilities until recently.

Answer:

2. What recent trends in community architecture are affecting library design?

Answer: a.

b.

3. List at least three protective/security features used in the Great Northwest Civic Association Library project described in the article.

Answer: a.

b.

c.

4 What solutions are suggested by the article for arranging and increasing funding for community facilities?

Answer: a.

b.

5. What rationale was used for refurbishing an abandoned ice hockey rink in the Boston Boys and Girls Clubs project?

Answer: a.

b.

c.

6. What are two current trends in the construction of law enforcement facilities? List examples of each.

Answer: a.

b.

For answers turn to page 171

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Continued from page 169

Answers

1a. Meeting rooms of different sizes, classrooms, office/counseling space, and kitchens.

2.a. Increased technology considerations, i.e., more wiring management, special lighting for computer terminals, fiber optic cabling, more sophisticated machinery, ergonomics.

b. Community and educational programming, i.e., children's story hours, galleries, community meeting rooms.

3a. An open space design allows a librarian at the circulation desk visual control.

b. Windows are protected by stone masses, positioned in a defensive posture against vandalism, presenting a solid wall to the street

c. Louver system protects against harsh daylight.

4.a. Increase collaborations, partnerships, and collective ventures between city departments, private, and non-profit social service agencies.

b. Program greater functionality to serve more diverse audiences and their needs. The same facility can offer social services for seniors, teens, counseling, and recreation, saving construction, staffing, and maintenance spending.

5a. The project would ". . . create an energetic, exciting community magnet."

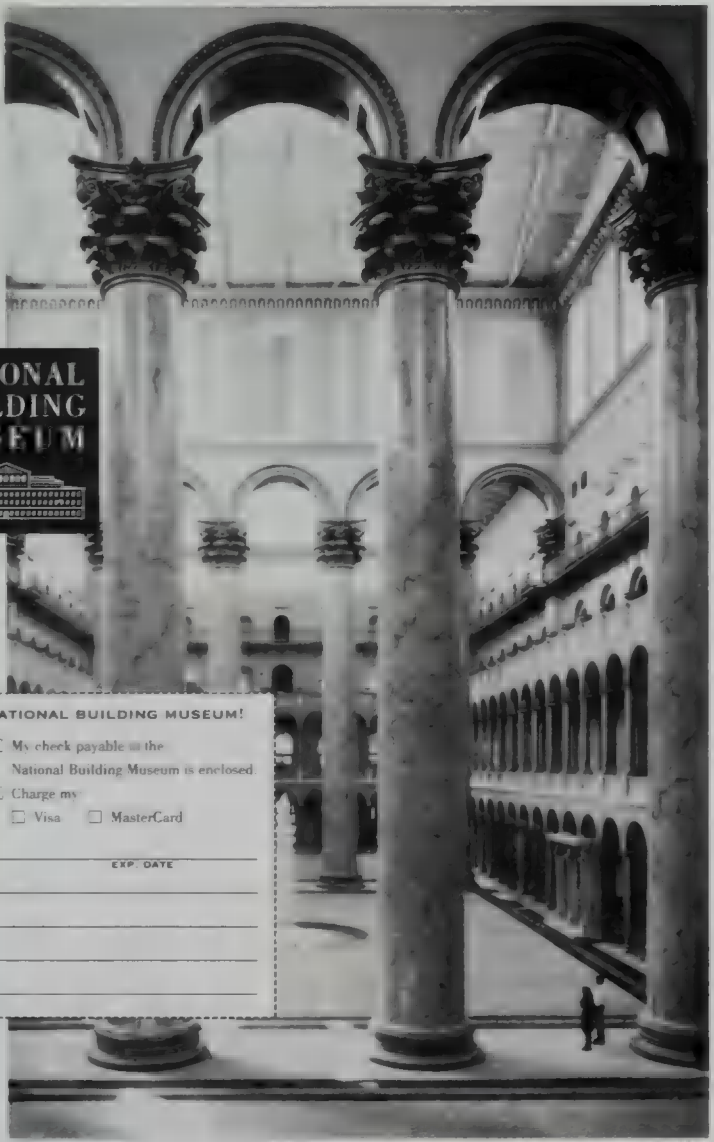
b. Renovating would avoid giving the appearance of waste by razing and starting over.

c. The structure "speaks to solidity, stability . . ." both of which were needed and lacking in that particular neighborhood.

6.a. The article describes the need to balance "open-looking" community functions with security cnsiderations in facilities. Examples: larger entrances, vaulted ceilings, more glass, community meeting room, and metal detectors.

b. Another trend, particularly as a cost control factor, consists of small decentralized police stations. Examples; store front stations, mini "cop shop" stations that can be relocated, portables; recreational vehicles.

To fill out the Self-Report Form go to page 173



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AIA/CES Self-Report Quality Level Worksheet

This worksheet should be completed and filed with each self-report form (following page) submitted to the AIA/CES. To determine the quality level of the program/learning project you are reporting, answer the questions below. Stop at the level where "no" is the appropriate response.

Quality Level 1—Both Criteria A and B must be met.

A. ☐ YES ☐ NO Learning objectives (expected outcomes) related to the practice of architecture were established prior to engaging in this program/learning. (Please list key outcomes you expected to achieve as a result of this program.)

____

____

____

B. ☐ YES ☐ NO Learning resources (people or materials) used in this program/learning project reflected an in-depth knowledge related to the learning objectives.

Human resources used

☐ In-house expert
☐ School faculty member
☐ Other ______________________________
☐ Practitioner in the field
☐ Independent expert or consultant
☐ Industry representative

Material resources used

☐ Journal articles
☐ Program handouts
☐ Teleconference
☐ On-site observations
☐ Books or manuals
☐ Audiotape
☐ Slides or overheads
☐ Other ______________________________
☐ Computer software
☐ Videotape
☐ Tutorial software

Quality Level 2—Criteria A, B, and C must be met.

C. ☐ YES ☐ NO Interactive (nonpassive) learning activities were a significant part of this program/learning project. (Indicate the means used to accomplish this criteria. Mark all that apply.)

☐ Planned Q&A periods throughout program
☐ Group exercises and discussion
☐ Interactive computer software
☐ Writing a paper or article
☐ Other ______________________________
☐ Simulations or role playing
☐ Hands-on activities
☐ Problem solving exercises
☐ Independent expert or consultant

Quality Level 3—Criteria A, B, C, D, and E must be met.

D. ☐ YES ☐ NO Some of your learning objectives were based on objective information concerning your actual learning needs. (Indicate the means used to accomplish this criteria. Mark all that apply.)

☐ Survey of clients, consultants, building officials, or others familiar with the work of the participants or their peers
☐ Informal test group
☐ Systematic job performance review
☐ Standardized test or practice audits
☐ Review of work or performance by expert or peer
☐ Other ______________________________

E. ☐ YES ☐ NO A means of systematic feedback concerning the learning progress was used during the learning project. (Indicate the means used to accomplish this criteria. Mark all that apply.)

☐ Informal posttest
☐ Informal pre- and posttests by expert or peer group
☐ Postreview of work or performance by expert or peer group
☐ Other ______________________________
☐ Standardized pre- and posttests or practice audits
☐ Pre- and postreviews of work or performance
☐ Standardized posttest or practice audit

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AIA/CES Self-Report Form

This form should be completed and submitted with a quality level worksheet for each program/learning project that is not registered with the AIA/CES by the provider.

Member information

LAST NAME ____________ FIRST NAME ____________ MIDDLE INITIAL OR NAME ____________

AIA ID NUMBER ____________

Program/project title: **Community Buildings, ARCHITECTURAL RECORD, June 1996**

Start date: ____/____/____ (MONTH / DAY / YEAR) Completion date: ____/____/____ (MONTH / DAY / YEAR)

________Quality level (QL) of this program.
(Use the quality level worksheet to determine the quality level.)

________Number of hours of learning directly involved in the program.

________Number of learning units (LUs) awarded for this program.
(Quality level x hours = learning units)

Check up to three boxes below that are most closely related to your program/learning project.

- ☐ 01 Building Codes and Standards
- ☐ 02 Corporate Architects' Issues
- ☐ 03 Design
- ☐ 04 Architectural Education and Research
- ☐ 05 Educational Facilities
- ☐ 06 Environmental and Energy Issues
- ☐ 07 Health-Care Facilities
- ☐ 08 Historic Resources
- ☐ 09 Housing
- ☐ 10 Interiors
- ☐ 31 Accessibility Design
- ☐ 11 Justice Systems Facilities
- ☐ 12 Project Management
- ☐ 13 Public Architecture
- ☐ 14 Urban and Regional Design
- ☐ 15 Career and Workplace Issues
- ☐ 16 International Architecture
- ☐ 17 Documentation Technology
- ☐ 18 Construction Management
- ☐ 19 Facility Management
- ☐ 20 Public Service
- ☐ 00 Other ____________
- ☐ 21 Practice and Risk Management
- ☐ 22 Intern Development
- ☐ 23 Building Technology
- ☐ 24 Management and Leadership Issues
- ☐ 25 Computing and CAD
- ☐ 26 Real Estate and Development
- ☐ 27 Financial Management
- ☐ 28 Marketing
- ☐ 29 Religious Facilities
- ☐ 30 Seismic and Extreme Conditions

This program addresses issues concerning the health, safety, or welfare of the public. ☐ YES ☐ NO

I hereby certify that the above information is true and accurate to the best of my knowledge and that I have complied with the AIA Continuing Education Guidelines for the reported period.

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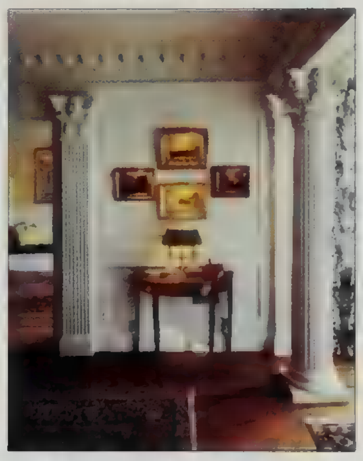

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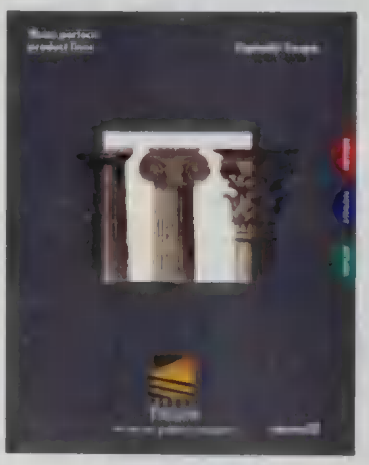

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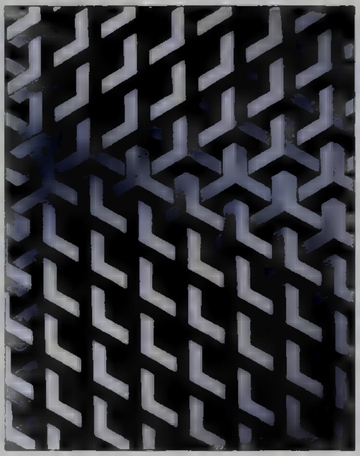

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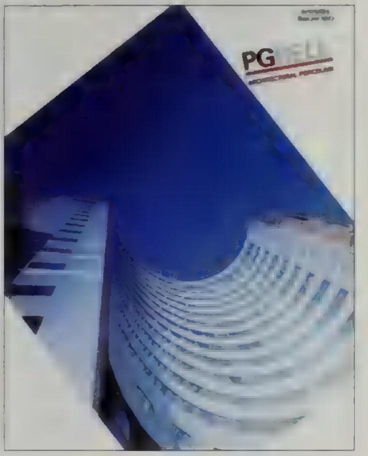

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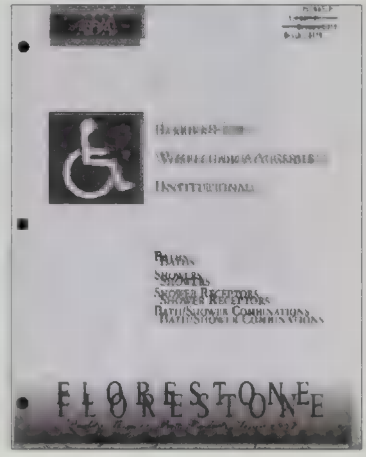

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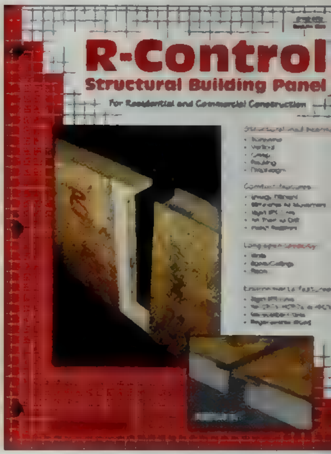
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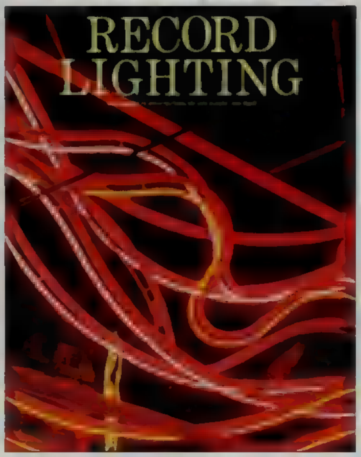

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Every possible effort will be made to return material submitted for possible publication (if accompanied by stamped, self-addressed envelope), but the editors and the corporation will not be responsible for loss or damage.

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ARCHITECTURAL RECORD (ISSN0003-858X) is published monthly by The McGraw-Hill Companies. Periodicals postage paid at New York NY and additional mailing offices. Postage paid at Montreal, Quebec, Canada. Canada Post International Publications Mail Product Sales Agreement No. 246565. Registered for GST as The McGraw-Hill Companies. GST Number R123075673.

Postmaster: Please send address changes to: ARCHITECTURAL RECORD, Attn: Fulfillment Manager, P.O. Box 566, Hightstown, NJ 08520

PRINTED IN USA

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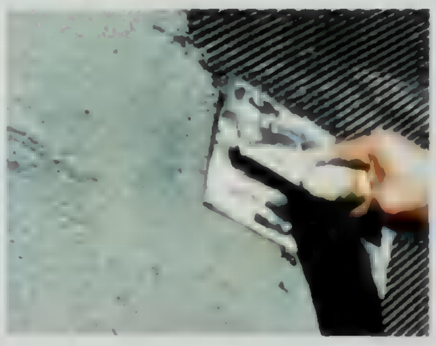

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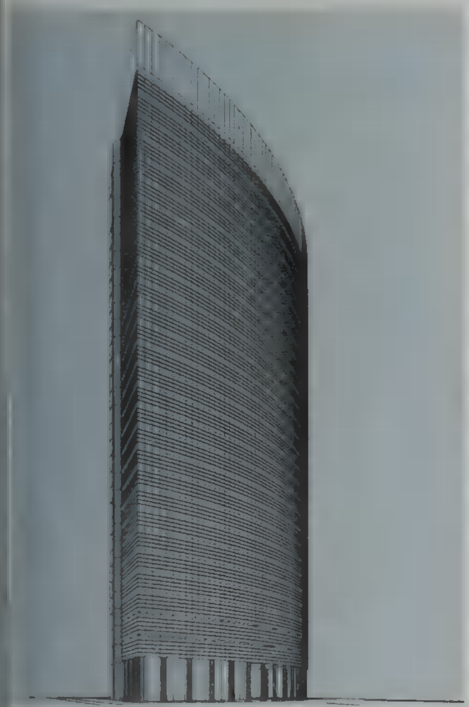

NTT Head Office Building in Tokyo, lesigned by Cesar Pelli & Associates ind Yamashita Sekkei, is featured in RECORD's fourth annual Pacific Rim Section (page PR28).

Continuing Education
This month, two articles in the Pacific Rim Section (page PR28 and PR34) are eligible for AIA/ARCHITECTURAL RECORD Continuing Education earning credits. See page 65 for earning-credit instructions.

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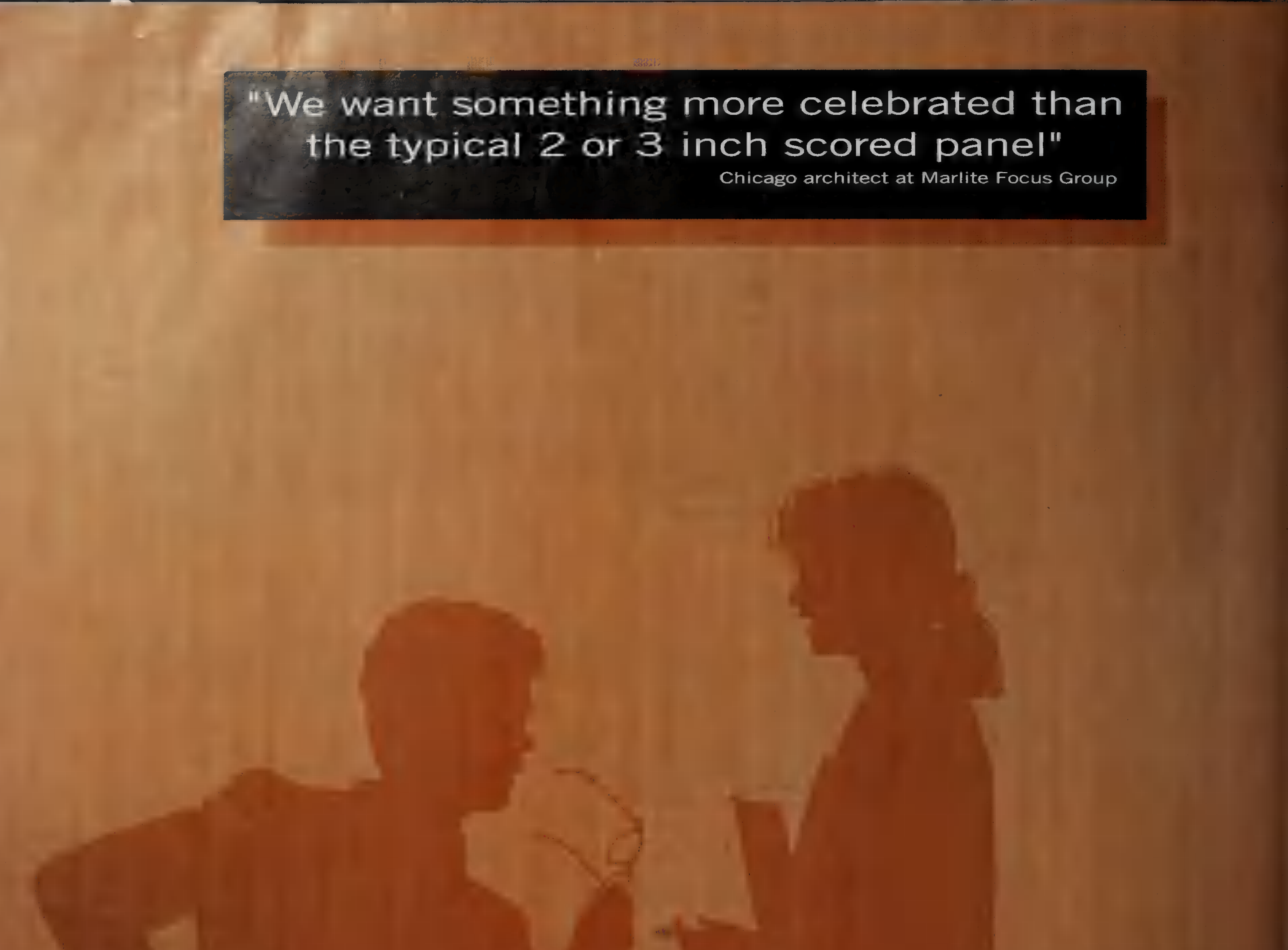
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Where's the community?

I found it interesting that of the seven community buildings featured in your June issue [ARCHITECTURAL RECORD, pages 66-103], not one of them was shown in the context of the community they were built in. Does this mean that (1) these buildings did not consider their town or city, or (2) your magazine has chosen to ignore this aspect?

If the former is true, you have the responsibility to find examples of interesting buildings which relate to their community fabric. If the latter is true, I think you should be ashamed. As one of the dwindling number of journals representing new architectural ideas to the profession, you should do more than present isolated objects, however beautiful, as worthy of the title "community buildings."
Bruce Brubaker, Architect
Point Richmond, California

Editor's note: It is a mistake to think that architecture is good just because it fits into the "context of a community." True, buildings, especially community buildings, should be good neighbors, but the architects who design them should also aspire to bring more to these neighborhoods, not allowing themselves to be limited by what was there before. Does a ghetto deserve a ratty building because it fits into that "context"?

The writing in these stories certainly showed how the architects and their solutions sought an understanding of the context of these communities in ways that cannot be understood just by looking at the pictures of these "isolated objects."

Boyer Report available

I read your editorial on the architectural education (Boyer) report by the Carnegie Foundation for the Advancement of Teaching [ARCHITECTURAL RECORD, June 1996, page 9]. Could you tell me where I can get a copy?
Donald P. Greenberg
Director, Program of Computer Graphics
Jacob Gould Schurman
Professor of Computer Graphics
Cornell University

Editor's note: Order from California Princeton Fulfillment Services, 1445 Lower Ferry Road, Ewing, NJ 08618; phone 800/777-4726 or 609/883-1759. Cost : $15 plus shipping.

Ready for inspection

I found your recent editorial, Ready for Inspection [ARCHITECTURAL RECORD, May 1996, page 9] in need of clarification. First, the New York City Dept. of Buildings has had greater issues than clogged inspectors' calendars and downsized departments. Bribery and corruption, at all levels in the department, has been eliminated.

Since the election of our new mayor and his appointment of Joel Miele as Commissioner of Buildings, I have seen more positive changes take place during this short period than the total of all the time I have previously been dealing with this agency.

To say that they are fostering change is an understatement. Every facet of the department has been examined and reviewed for improvements, all of this done with the professionals it was meant to assist in mind. This commissioner has pushed for changes in the approval and inspection procedures, not only to help cut through the bureaucracy but, in his words, "to put licensed design professionals on the same level as all other state-licensed individuals." The attempt to eliminate "proscriptive" reviews goes hand in hand with this increase in responsibility. The question is not if professionals are ready for increased responsibility for inspections, but rather whether the powers that be will assist in this reaffirmation of our project control.

You stated [in your editorial] that architects have to utilize their talents and skills outside the traditional design practice. To this end, project involvement must begin at an earlier point than it has traditionally, and conclude well after occupancy.
Robert M. Scarano, Jr.
Scarano & Associates
Architects
New York City

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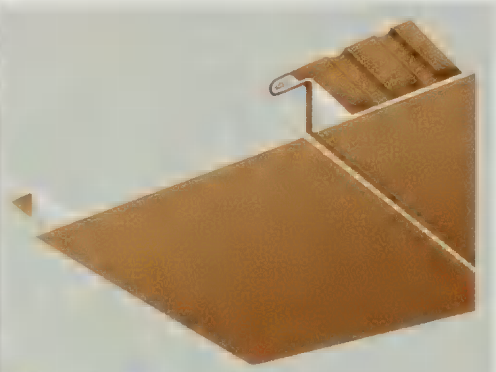

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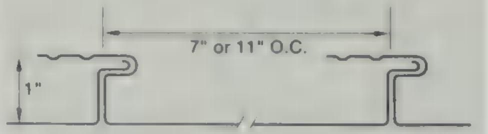

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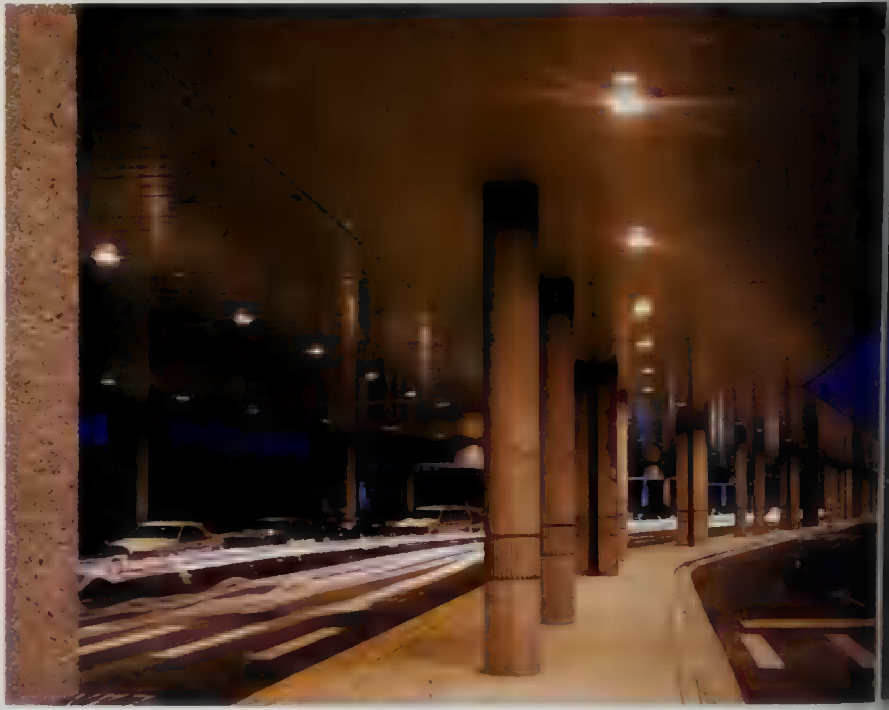

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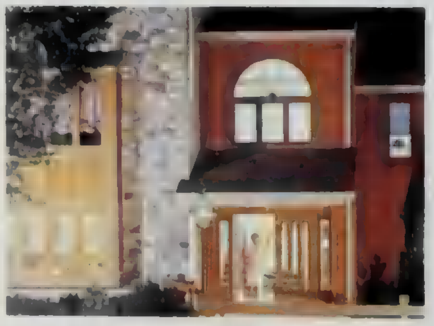

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Unfinished Business

At the opening of the present decade, RECORD published a list of 16 challenges facing the architectural profession. Since that day many of these challenges have been met, others are on their way to being met, still others defy solution any time soon:

- The computer has made great and largely beneficial inroads into architectural practice. It has become a friendly daily tool, not a "you gotta have it" machine placed in one corner and shepherded by a single-minded techno-guru. We're seeing leaner firms, more dependent on CAD than ever before. And it promises to give even small firms the power to compete in a tough marketplace.
- In housing, the list criticized the unbalanced ratio of palaver to performance. This too is changing, though not at a rate that the scale of the problem demands. Resource-consuming housing conferences are still held, including the recent United Nations-sponsored Habitat II conference in Istanbul, to be reported on in these pages next month. But their tone is more pragmatic—the critical roles of finance, engineering and social infrastructure, and sound administration are being addressed—and architects are showing greater ingenuity in converting declining housing resources into viable housing.
- The architectural "star" system, endemic to the high-rolling '80s, while not in eclipse, is at least being matched by a greater esteem for the team, without which even the most celebrated stars would not survive.
- Global practice has made seven-league strides in the decade. U.S. firms are at work from Bilbao to Beijing; European firms are busy in New York City and Chicago. Some American firms collect half their billings from overseas work. How long this continues in the developing nations hinges in part on how many American-trained architects end up replacing foreign firms as they return to their own countries with their newly acquired expertise.
- Architecture as fashion, or stage set, is not about to decline. Spurred by an ecumenical mindset where all is fair—from reconfigured Classical and Gothic to small-town nice to high-tech industrialized—the line between a logical expression of the program and applied bravado will remain indefinitely blurred.
- "Green" design has entered the architect's daily vocabulary despite price-premiums and a lack of visibility.
- The use of techno-jargon by the profession continues unabated. With heightened citizen participation in planning and design decisions, especially on public projects, it is once more time for simple language to creep into the architect's communications.
- The scope and quality of building research has made modest strides in recent years, but due in part to cheaper U.S. energy and more lenient U.S. codes in such areas as a right to daylight, technological breakthroughs have lagged behind those of some European nations. University-based building research has not had enough success in leaping over the gap to practical applications in the marketplace. Architects by and large lack research training and resources, although their contribution to building knowledge yielded by day-to-day work on projects is all too often ignored. As for U.S. product manufacturers, they have become increasingly sophisticated in imparting up-to-the minute information in usable formats.

Finally, architects must face the fact that in the decades to come they cannot live by design alone. Increasingly, they must be prepared to focus on providing services both upstream and downstream from traditional design practice. And as RECORD stated at the start of the decade, it's time "to rebuild the architect's state of worth, to take a tougher stand in fee negotiations, to realize that profit is not a dirty word, and to point out to the client the risks incurred in eroding the architect's authority."
Stephen A. Kliment

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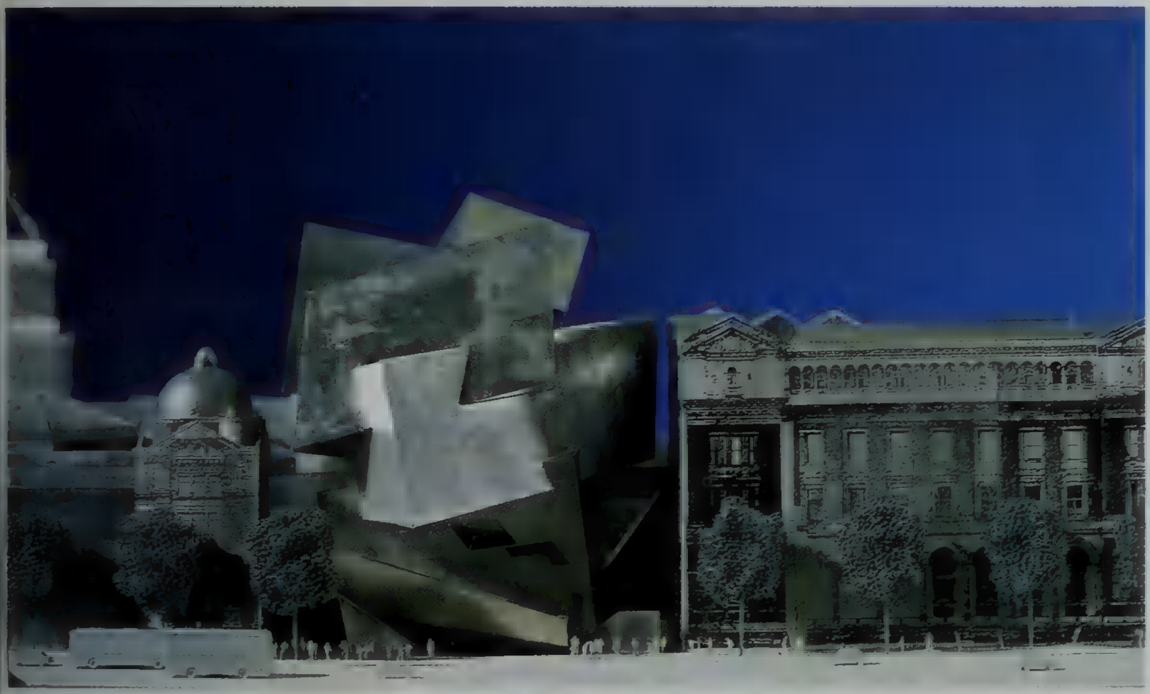
London

Libeskind Crosses the Channel



Berlin-based Daniel Libeskind is the latest in a growing number of foreign architects—Behnisch, Calatrava, and Herzog & de Meuron, among them—who have won commissions in Britain. The new trend marks a belated gesture by Britain, whose own architects have been showered with overseas commissions. In May Libeskind was chosen to design the $63-million Boilerhouse extension to London's Victoria & Albert Museum, following an open competition that attracted over 100 entries. If built, Libeskind's heaped, angular volumes—the first significant example of "Deconstructivist" architecture in Britain—will provide 108,000-sq-ft of exhibition space. Sandwiched between two Victorian galleries, Libeskind's design pays homage to the period with its own polychrome ceramic tile cladding. Funding is yet to be secured. *Hugh Aldersey-Williams*

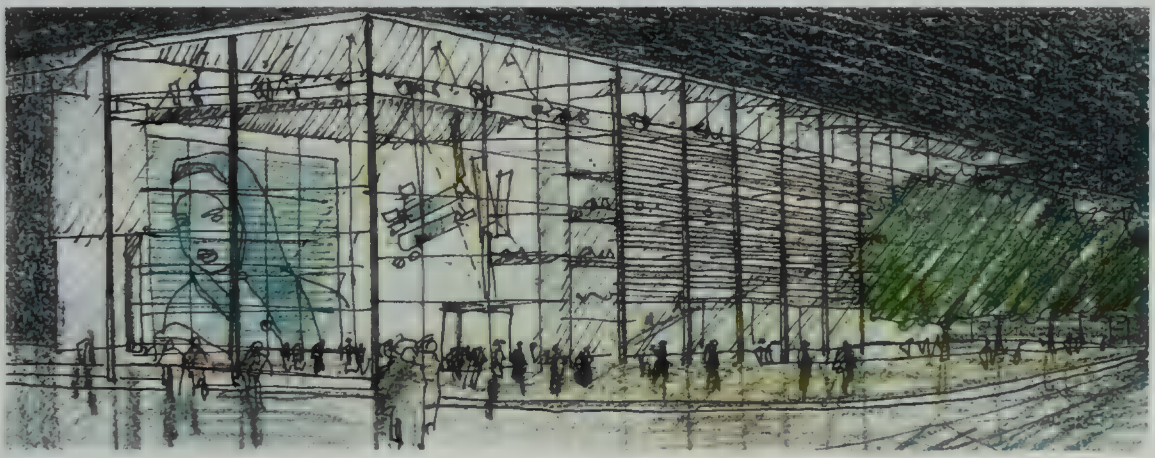
Aspen Design Conference

German Design Peaks in the Rockies

The 46th International Design Conference in Aspen, the annual meeting of design minds held last month in Colorado, took on the theme of "Gestalt: Visions of German Design." Designers of buildings, products, graphics, furniture, and fast cars and trains as well as clients, critics, and academics dissected the complexities of German design culture that often surface in watered-down form on American shores. Speakers provided a sense of the design ferment in present-day Germany and critiqued its results: Culture critic Bazon Brock argued that the "Germanness" in German design springs from an odd duality of rationalism and idealism, while architect Axel Shultes decried the spatial dismemberment of Berlin in the name of "critical reconstruction." One hopes a design gestalt as vital as the Germans' will take root n the U.S. *M. Gordon Brown*

Germany

Living the Multimedia Life, Foster-Style



Sir Norman Foster & Partners of London has won an international competition for the design of a Multimedia Center in Hamburg. The 237,600-sq-ft project includes an extension to the city's Media Center, offices, shops, a café, and a glass-enclosed reception area with a giant screen to highlight the center's work. To fully integrate the experience for young and old, it also includes housing and a senior-citizens home. The L-shaped complex of glass, steel, and concrete is to be completed in 1998. *Abby Bussel*

(News continues)

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orrespondent's File: Barcelona

Post-Games Private Development Keeps Faith With Olympic Spirit

he design professionals from around the orld who gather in Barcelona this month for he 19th Congress of the International Union f Architects will find a city that has not ested on its Olympic laurels. While the 1992 lympics gave impetus to important infratructure improvements, public amenities, nd cultural facilities (including Richard feier's recently opened Museum of Contemorary Art in the Gothic Quarter, and the djacent Center for Contemporary Culture y local architects Albert Viaplana and Helio iñón, headquarters for the Congress), in the ucceeding four years the city has extended s campaign of urban growth from the public the private sphere.

dozen new areas

n a policy already in place before the Games, layor Pasqual Maragall has given the city overnment a leading role in private developent, designating 12 areas for investment, stablishing design guidelines for new contruction, and lobbying actively to direct rivate commissions to the best local talent.

he 12 "New Centralities," now in various ages, were established to relieve pressure n the historic core and stimulate certain eglected inner-city districts. One of the first as completed last year in the *port vell* or old ort, where Viaplana and Piñón have planned a striking waterside commercial complex and park on the site of obsolete wharves, featuring an IMAX theater by architects Jordi Garcés and Enric Soria, an aquarium by Robert and Esteve Terradas, and their own shopping mall linked to the city by a fanciful wood pedestrian bridge across the harbor. Rafael Moneo, working with urban designer Manuel de Solà-Morales, designed a full-block 1-million-sq-ft megastructure on the Diagonal avenue that is a development area in its own right, with offices, hotel facilities, and a two-level commercial arcade; known as the L'Illa block, its long staggered limestone facade has become an instant landmark. And Garcés' and Soria's plan for Tarragona Street has culminated in their design for the Hotel Plaza, a severe, minimal cubic block relieved by its exquisite stone detailing.

Currently in development are the 200-acre Sagrera district, site of the future high-speed train station, master-planned by Sir Norman Foster and Partners, and the 90-acre Diagonal Mar complex beside the Olympic Village, by Ricardo Bofill's Taller d'Arquitectura.

According to the rules

As the buildings mentioned so far suggest, the city's design guidelines, intended to harmonize new construction with old, call for street facades in stone with regular vertical or square openings. Interior openings and surfaces may vary. Interesting interpretations of these rules can be seen in Esteve Bonell's Citadines Aparhotel on the pedestrian Ramblas of the Gothic Quarter; in a nearby office building by Oriol Bohigas' studio MBM; and in the Carburos Metálicos Offices by Lluís Demènech and Roser Amadó, where a chamfered block corner in the 19th-century Eixample is used to create a diagonal geometry of thin stone veneers and glass.

The most controversial aspect of Barcelona's activist role in development is its promotion of specific architects, helping clients organize limited competitions and suggesting lists of firms. Maragall has said that the city "seeks to create alliances" with developers, but it also applies pressure when necessary, following a precedent set by the 1992 Hilton Hotel on the Diagonal, by Viaplana and Piñón, after the city objected to a scheme that Maragall thought more appropriate to a coastal resort. While this policy seems ethically questionable and could be vulnerable to abuse, it reflects the passionate commitment that Barcelona's leaders feel for their city and expect from those who build here. As Maragall told one prominent developer shortly before winning him over, "You will go down in history as the destroyer of the Eixample, but you could be remembered as its savior." *David Cohn*

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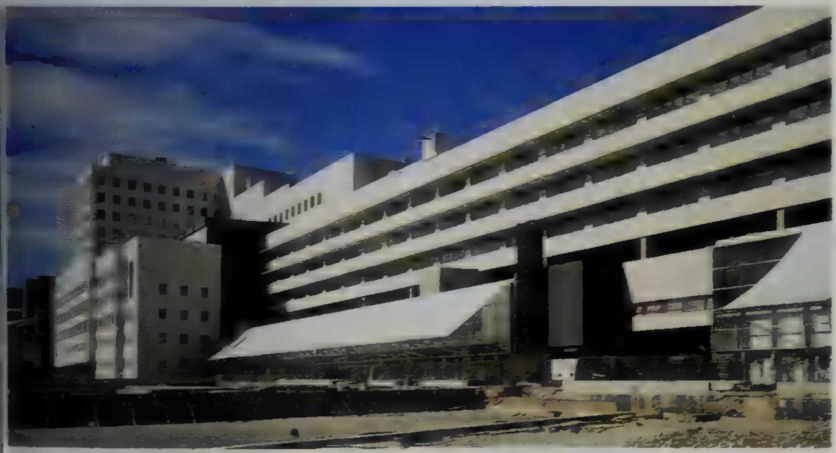

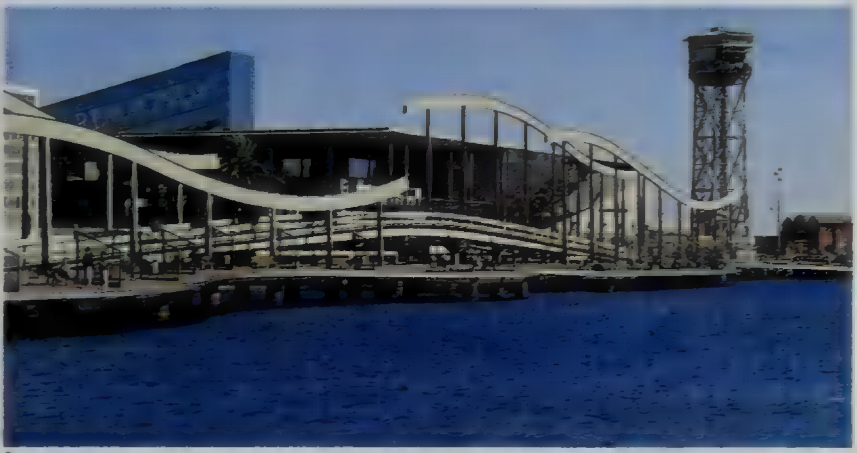

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1. L'Illa Diagonal by Rafael Moneo with Manuel de Solà-Morales.
2. Waterside commercial complex by Albert Viaplana and Helio Piñón.
3. Office building by Oriol Bohigas of MBM.
4. Carburos Metálicos offices by Lluís Domènech and Roser Amadó.

News *continues*

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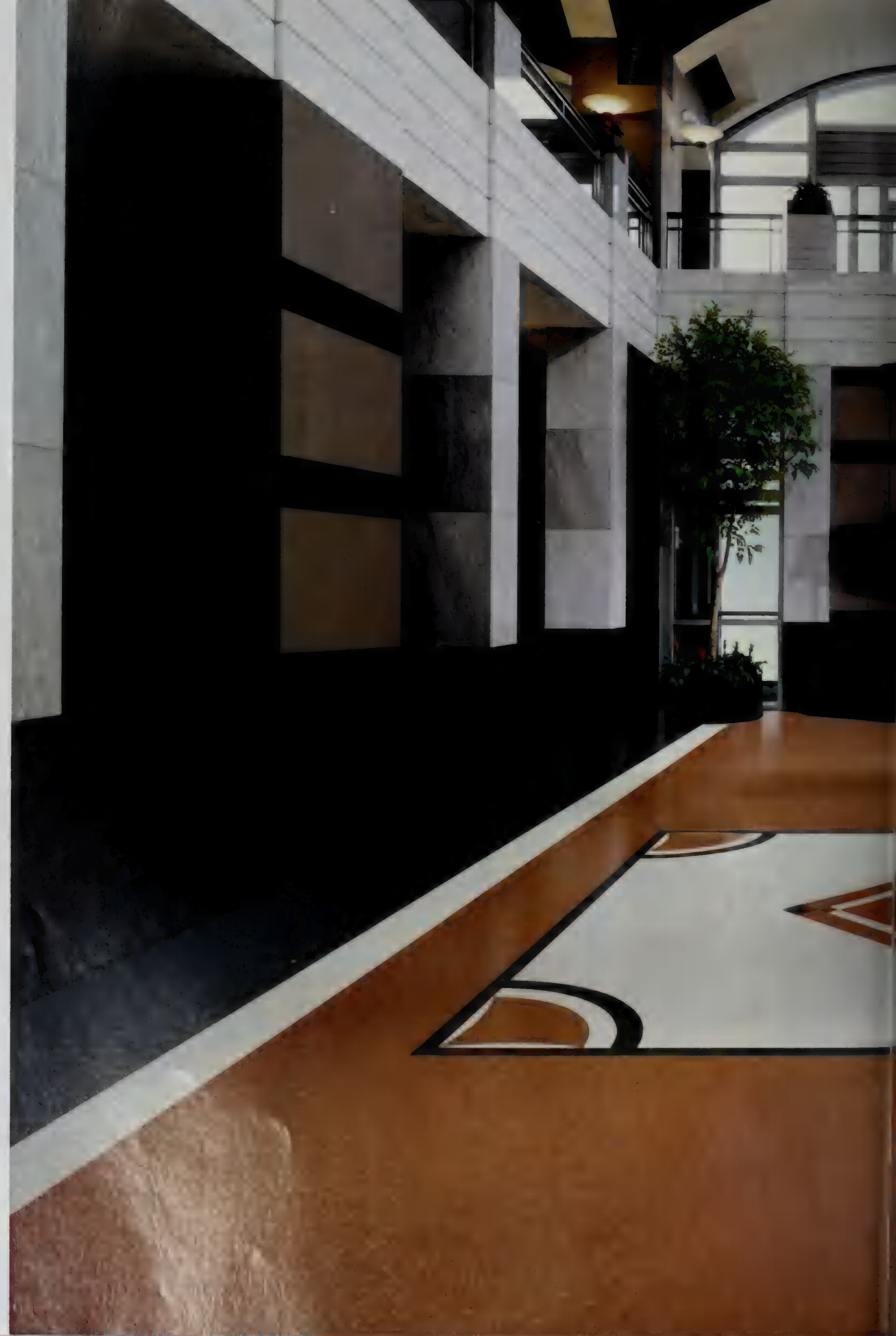

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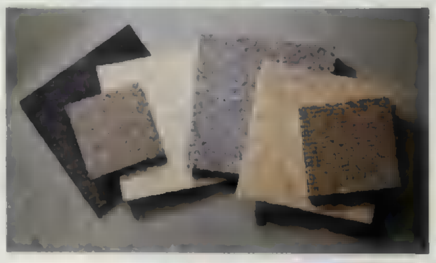

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Design

Briefs

Architect chosen for Berlin Embassy
Moore Ruble Yudell Architects & Planners of Santa Monica with Gruen Associates has won the competition for the U.S. Embassy in Berlin [RECORD, March 1996, pages 36-43] to be built next to the Brandenburg Gate.

Call for entries
The American Battle Monuments Commission is sponsoring an open design competition for the first national World War II Memorial in Washington, D.C. Submissions are due August 12. Contact Christine Kelly, General Services Administration, telephone (202) 708-4900.

New leadership in the schools

◆ Architect/critic Donna Robertson has left her position as dean of the Tulane University School of Architecture to take the same position at IIT in Chicago.

◆ Peter Lynch will replace Dan Hoffman as head of Cranbrook Academy's architecture department this fall.

Advisors for Oklahoma City Memorial
An interdisciplinary team comprising architect Donald Stastny, landscape architect Paul Morris, and public-art consultant Helene Fried will organize the international competition for the $10-million Murrah Federal Building Memorial in Oklahoma City. The team hopes to call for entries this fall.

Awards for the civic-minded

◆ BOORA Architects of Portland received Oregon's 20th Governor's Arts Award. The first architecture firm to be so honored, BOORA provides free space in its office for two arts institutions and a scholarship for minority architecture students.

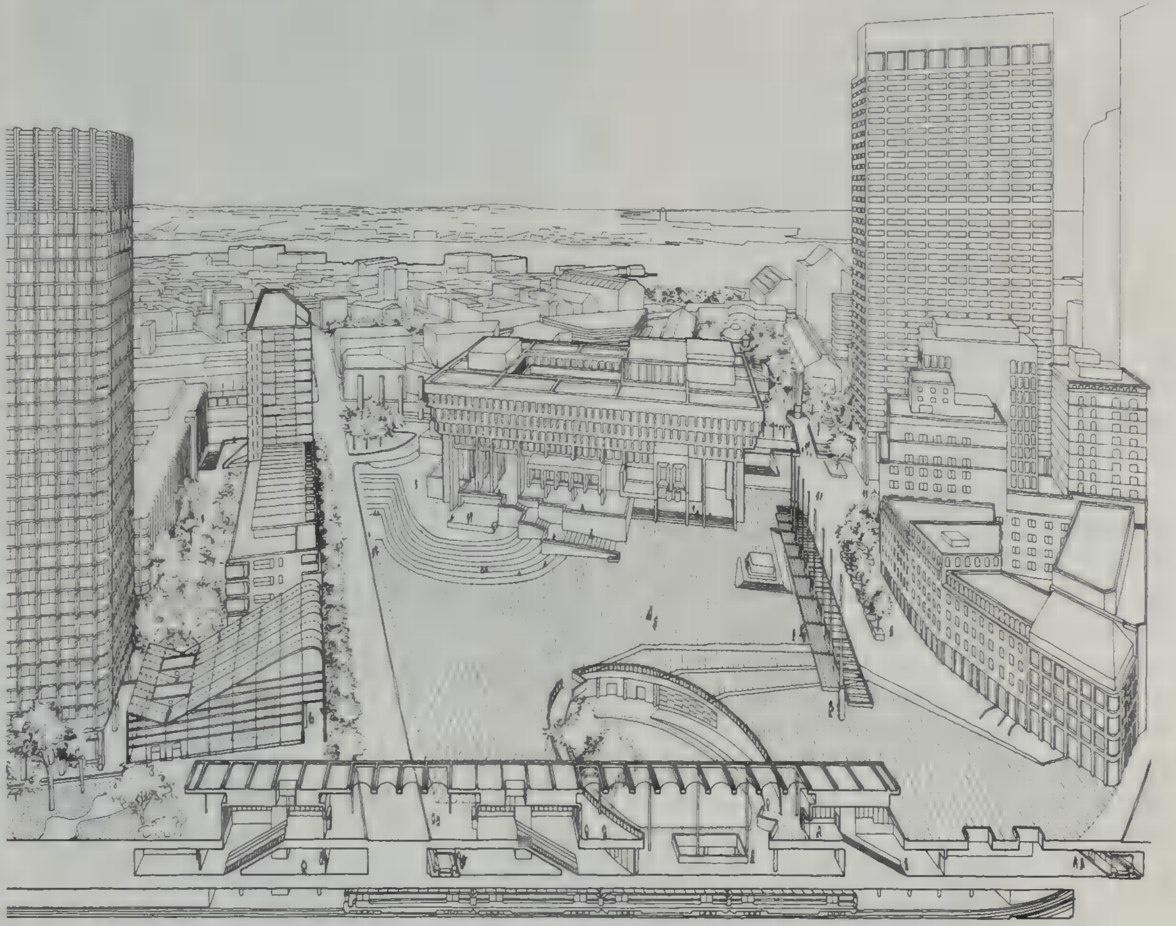
◆ The fourth annual Seaside Awards were presented in Seaside, Fla., in April to Jane Jacobs and Leon Krier for their advocacy of traditional community-making.

Franklin D. Israel, 1945-1996
Franklin D. Israel, a leading figure of his generation, died on June 10 at 50. An architect and educator, most recently at UCLA, Israel was best known for his houses [RECORD, April 1995, pages 82-91].

Serge Chermayeff, 1901-1996
Serge Chermayeff died May 8 at 95. Chairman of the architecture departments at both Harvard and Yale and author, with Christopher Alexander, of *Community and Privacy: Toward a New Architecture of Humanism*, his best-known work is the Bexhill Pavilion in Brighton, England.■

Boston

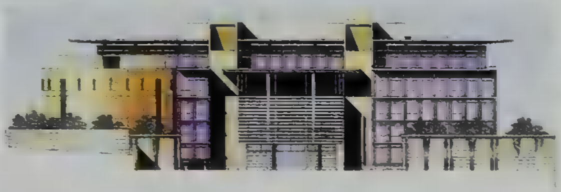
A Face-Lift for City Hall Plaza



The Brutalist landscape of Boston's City Hall Plaza, part of a 1960s masterplan by I.M. Pei, may be transformed into a more pedestrian, civic space, if a proposal by Chan Krieger & Associates with Prellwitz Chilinski Associates is realized. The redesign includes a revised subway station, a hotel, shops, cafés, a visitors center, new streets, an electronic billboard, an amphitheater, and a music garden. The project was commissioned by the Trust for City Hall Plaza, a non-profit group created by business and civic leaders. *A.B.*

Jerusalem

Foreign Affairs



A.J. Diamond, Donald Schmitt & Company of Toronto, with the local firm Kolker, Kolker, Epstein Architects, have won a competition for the Israeli Foreign Ministry building in Jerusalem's National Precinct, which holds the Knesset, the Israel Museum, and the Supreme Court. To be completed in 1998, the project includes offices, a school, dining facilities, and a ballroom. *A.B.*

Ewing, New Jersey

Outcry Saves Kahn Pavilions, For Now

A proposal by the Jewish Community Center of the Delaware Valley in Ewing, N.J., to demolish two of its Louis Kahn-designed pavilions (1954-'59) set off a recent outcry in the architectural community. Word of the threat spread quickly and put a stop, for now, to the JCC's plans. Used by the center's day camp and sited near their more famous Bathhouse brethren, the pavilions have extensive water damage. Poor maintenance, say engineers who have inspected the site, is the main reason for their condition. Efforts to establish an independent fund-raising campaign for restoration are underway. For more information, contact Preservation New Jersey at (908) 442-1100. *Abby Bussel*

News *continues*

Moneo Keeps on Winning

Rafael Moneo has won the international competition for the Cathedral Square Project in Los Angeles, beating out semi-finalists Frank O. Gehry & Associates; Morphosis; Venturi, Scott Brown & Associates; and Santiago Calatrava. Selected from a field of 46 entrants, the five firms participated in a theoretical sketch exercise (shown here)—a shrine for the statue of Junípero Serra, a Spanish Franciscan friar who founded nine missions in California. The 3,000-seat cathedral will include residences for the Archbishop of Los Angeles and clergy, offices, a conference center, and a public plaza. Awarding the commission, Cardinal Roger Mahony told Moneo that "for you this project was more than the design of another building for a client. This enterprise was about creating a wonderful sacred space in the midst of a modern city known for its ephemeral entertainment glitter." This continues the Spanish architect's winning streak, having received this year's Pritzker Prize and UIA Gold Medal. But all is not rosy for the new cathedral. The local Catholic Archdiocese, the country's largest, hopes to build on the downtown site of its historic, but earthquake-damaged 1876 cathedral: the proposed demolition has been the subject of a battle between the Church, the City, and preservationists. Construction, to be completed in the year 2000, will be funded by The Dan Murphy Foundation, The Thomas and Dorothy Leavey Foundation, and other private donors.

Abby Bussel

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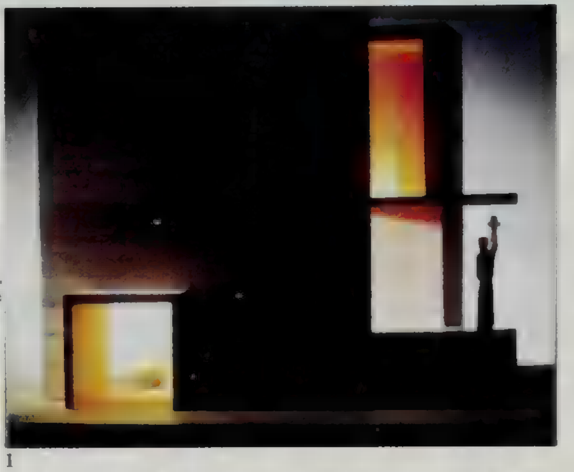

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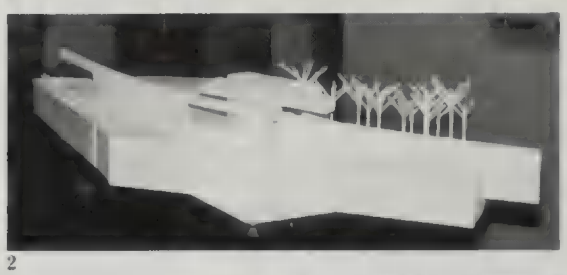

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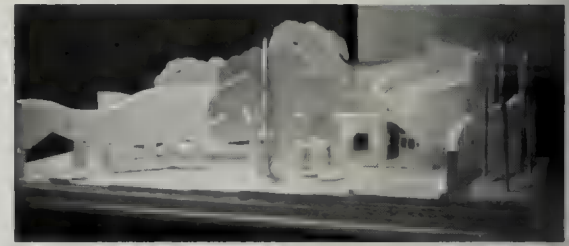

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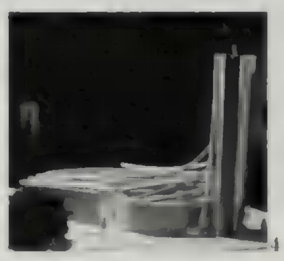

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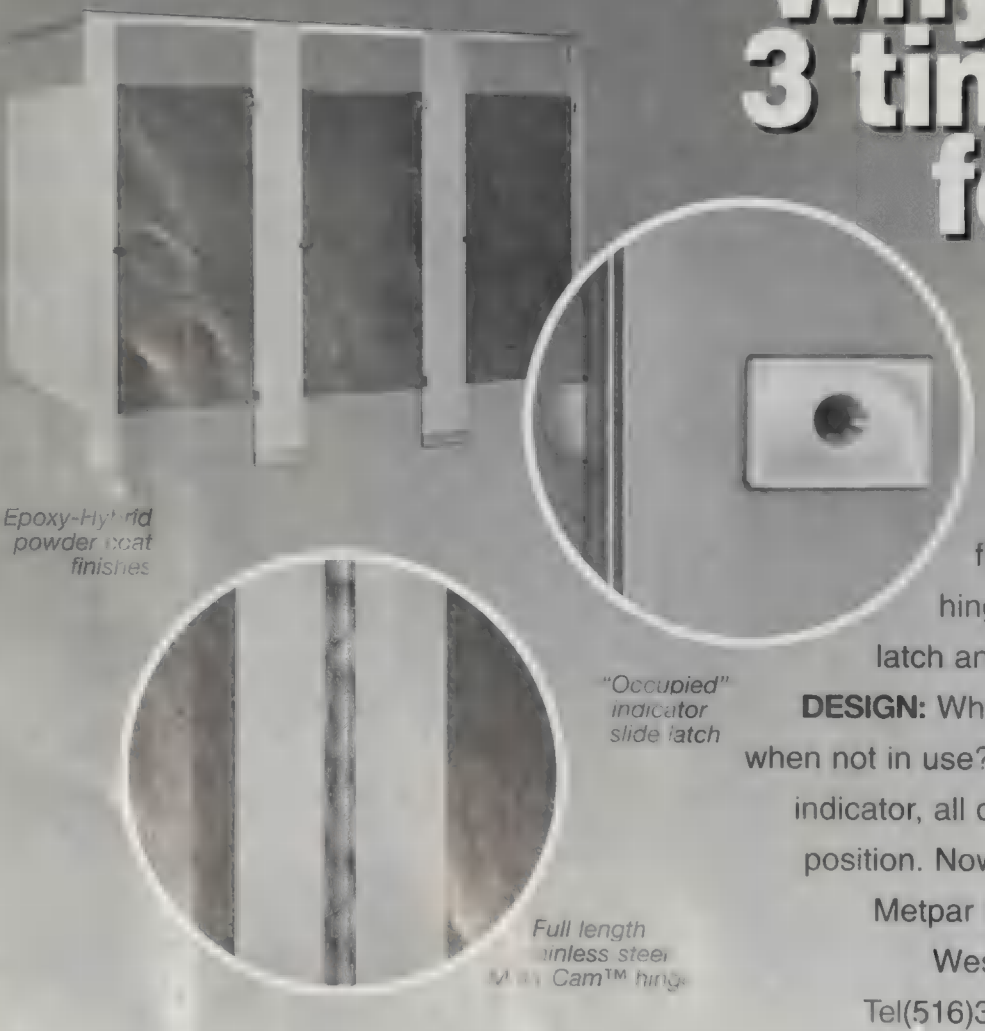
Sketch-exercise entries for the theoretical shrine:
1. Rafael Moneo; 2. Morphosis; 3. Venturi, Scott Brown & Associates;
4. Frank O. Gehry & Associates; 5. Santiago Calatrava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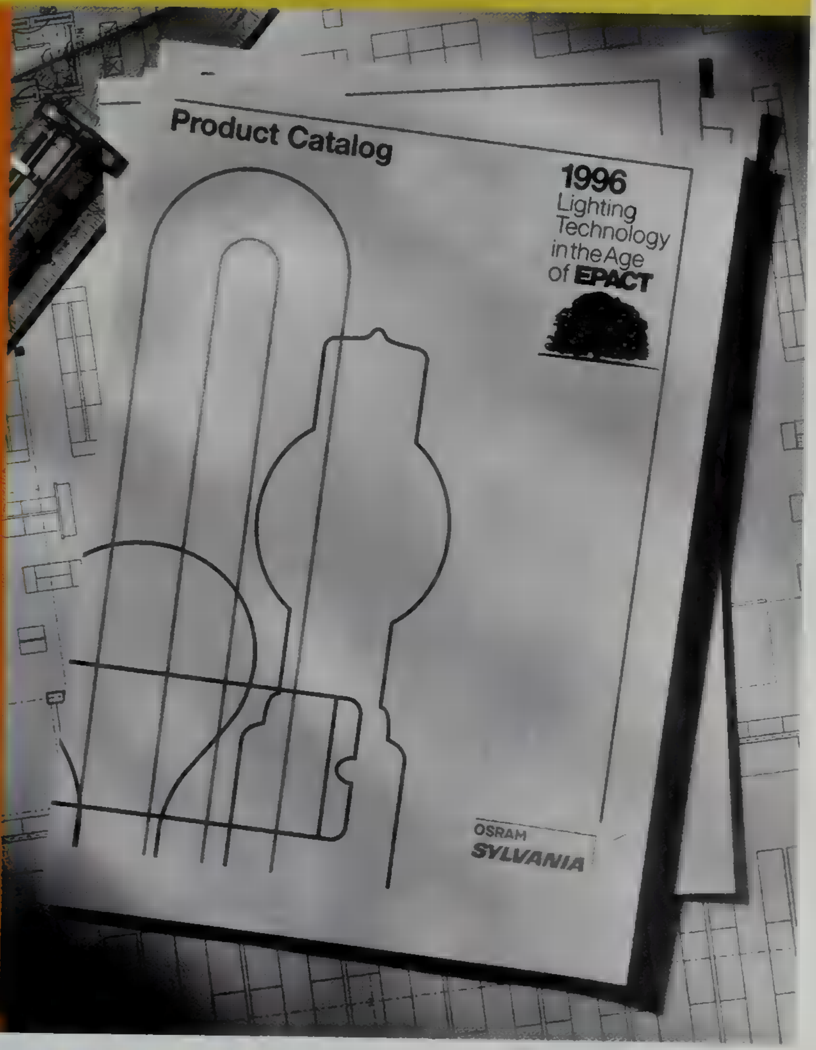

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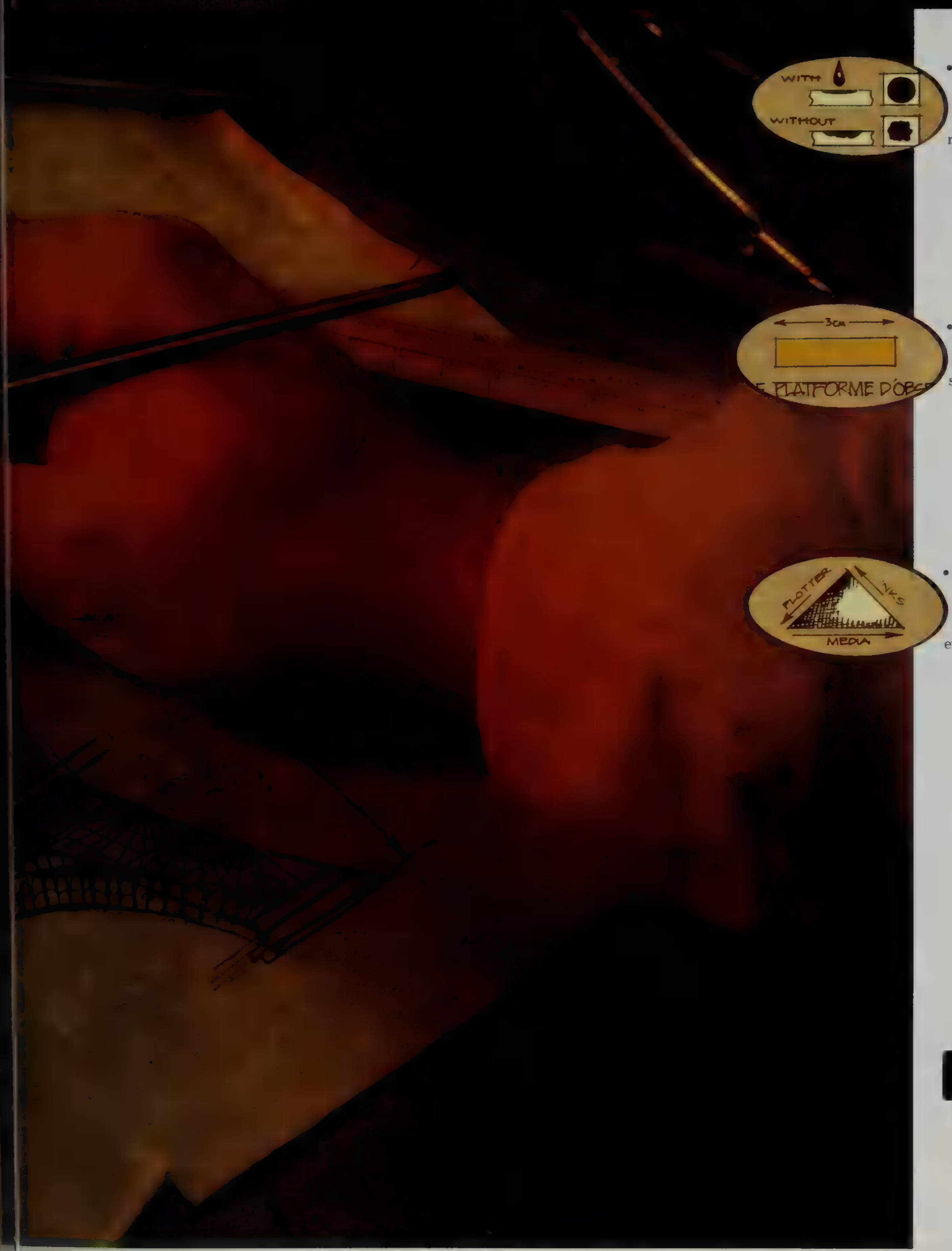

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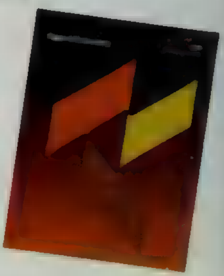

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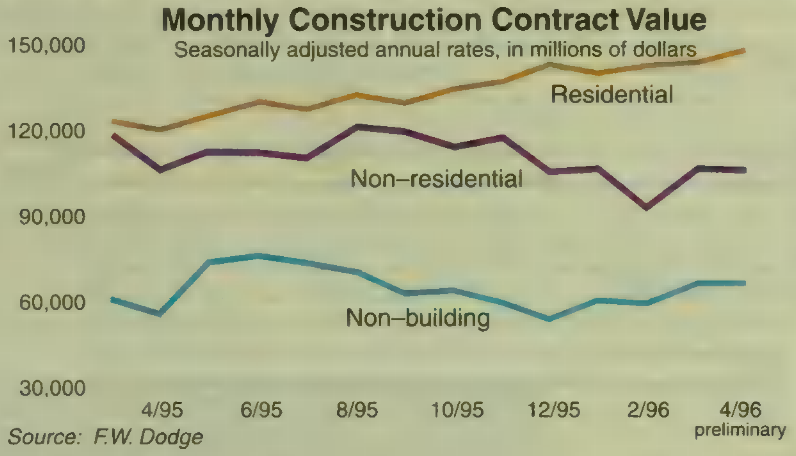
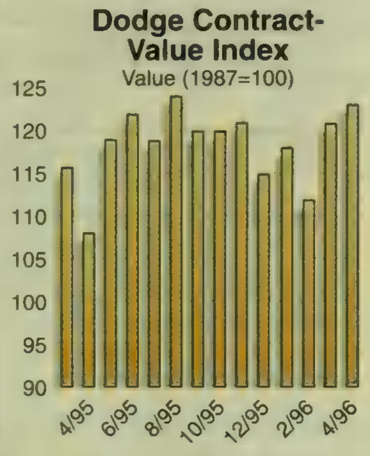
Indicators

Housing bounces back

In spite of rising interest rates, single-family housing construction strengthened in recent months. A combination of greater confidence and the fear of even higher rates may be driving some sales, says F. W. Dodge's Robert Murray. Commercial construction was up, boosted by starts in casino and hotel projects; other commercial types were flat or declined. Schools, hospitals, and detention facilities declined in April. Overall, non-residential volume in the first four months of 1996 was 7 percent below 1995 ■

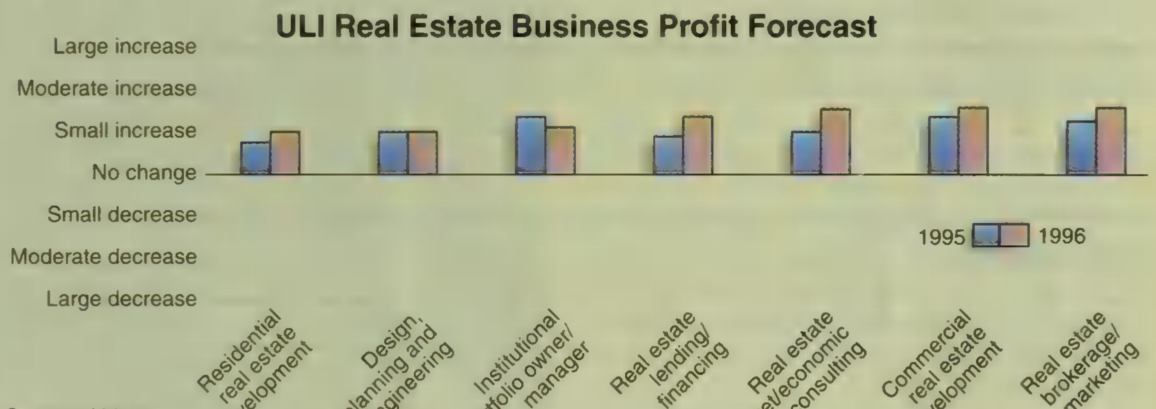


Source: F.W. Dodge



Commercial development's still tough

The Urban Land Institute's "1996 Real Estate Forecast" shows increasing profits for commercial real-estate brokers and development companies, but not much trickling down to design firms. Analysts feel this is because construction levels remain low, even though real-estate activity is up. Design firms added employees faster than other respondents, which may mean more work is in the pipeline, but fee income simply hasn't caught up. Call 300/321-5011 to obtain the survey ($14.95 members/29.95 non-members). ■

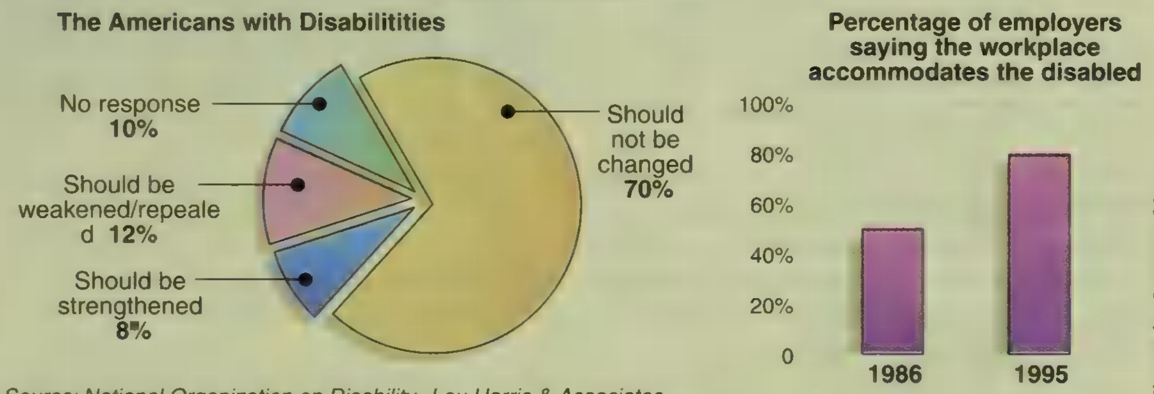


Source: Urban Land Institute

Buying in to ADA

Though there's been much confusion about ust what is required under the Americans vith Disabilities Act and other regulations ıffecting the disabled, American business loesn't favor changes in the legislation, ıccording to a survey by the National Organization on Disability. The survey showed hat only a small percentage of employers eported increased litigation costs. And a nuch higher percentage of business is now ctively accommodating the needs of disabled vorkers and applicants. ■

ADA and Business



Source: National Organization on Disability. Lou Harris & Associates

Charts by Leanor Glynn

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Short Takes

◆ **Troublesome overtime provisions:** Offering salaried "exempt" employees overtime pay is a violation of U.S. labor laws, but Zweig White's "Policies and Procedures" survey shows 42 percent of respondents still do so. If salaried employees receive overtime pay, they are legally defined as hourly, and are due time-and-a-half pay when more than 40 hours per week are worked. Heavy fines are possible. The survey ($250) can be obtained by calling 508/651-1559.

◆ **Photo guidance:** How do you get professional photography that correctly reflects a project's virtues? The American Society of Media Photographers offers a free brochure. Send a stamped, self-addressed envelope to ASMP, 14 Washington Road, Suite 502, Princeton Junction, NJ 08550.

◆ **Affordable housing innovation:** As part of HUD's Building Innovation for Homeowner-ship program, innovative house-building techniques are sought for recognition and possible financial support: Steve Winter Associates, 203/857-0200. ■

Succeeding in a Volatile World

11-1-1998
10-31-1998 Sodium 10-1-1998 12-31-1998

By Peter Slatin

As the United Nations Habitat conference convened this June in Istanbul to discuss issues of growth and development, architect Randy Gerner was grappling with Turkey's own very real growing pains. Gerner, a principal in Gerner Kronich Valcarcel, of New York City, has landed a few good commissions in the U.S., such as a 110,000-sq-ft corporate interiors project. In Turkey, however, the firm, whose partners split off from Kohn Pedersen Fox Interior Architects only 18 months ago, has already received four building or planning projects, including a new 40-story headquarters building for the country's largest conglomerate, a historic-renovation project, and a major urban master plan.

It's not just the Pacific Rim that's busy [see the supplement on that subject elsewhere in this issue]: "Istanbul has the potential to be a Singapore to Middle Eastern countries and the former Soviet states," says Gerner. "It's a bridge to the Islamic cultures where Asia meets Europe, literally and figuratively, in the center of the city."

This bridge, however, also can be an obstacle course for a Western-oriented architect, even one well acquainted with overseas work. Dozens of issues, says Gerner, confront the daily effort to bring a building out of the ground, both on paper and at the site.

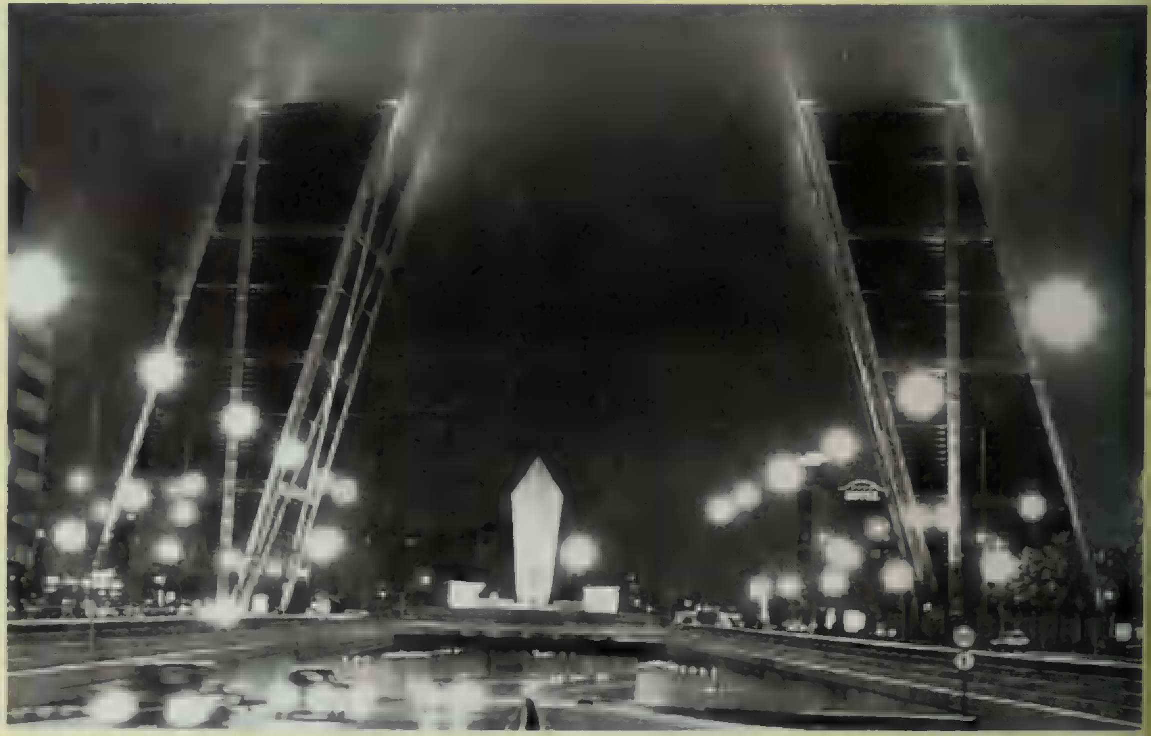
"Even the culture as to how to prepare drawings is different," Gerner explains. For example, the convention for arrows on stairs in plan is opposite that used in the U.S.—one small indication of just how topsy-turvy the design terrain is.

When in Rome—or Jakarta . . .

As overseas building markets continue to expand, especially in less developed countries, U.S. architects have been learning that to be successful requires a careful rethinking of how the firm works. Clients in foreign countries value American technical and design knowhow judiciously mixed with an openness and sensitivity to the host country and client.

Peter Slatin writes on architecture and real estate for The New York Post *and other publications.*

"We do our homework," says Bernardo Fort-Brescia of Arquitectonica, the Miami-based firm, which has an international practice ranging from Europe and Latin America to such exotic locales as Shanghai and Times Square. "Every place has a different business culture and different priorities," says Fort-Brescia, "from a sense of timing to reasons for making certain development decisions. We think of each project within those parameters, read a lot about the countries we're going to—we inform ourselves."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Caveat Emptor: *These Johnson Burgee twin towers in Madrid sat for years as bare steel. Local managers are accused of defrauding Kuwaiti investors.*

Few firms are able to go into foreign markets cold. Arquitectonica, due to Bernardo Fort-Brescia's roots in Peru, has long cultivated relationships in Latin America. Randy Gerner knew someone who was friendly with someone in Turkey, and built on that relationship.

Who is on the team?

Laying the groundwork should begin even before submitting qualifications. "There is virtually no area where preparation is not required," says Michael De Chiara, a partner in the New York law firm Zetlin & De Chiara, which specializes in real-estate practice and has negotiated many overseas contracts with developers. "You have to interview everyone to see who really has the experience" to act as an associate architect, a joint-venture partner, a consultant or subcontractor.

Another person whose experience and understanding the architect will likely need to carefully evaluate is the developer. In what De Chiara calls "quasi-Third World countries," like China—where capitalism and communism meet in a vast, swirling confluence of booming urban population and bare-bones agricultural society—"the level of unfamiliarity and unsophistication in modern building techniques creates impediments in the front end of any project."

"The well-advised architect," Di Chiara continues, "has to be sensitive about educating owners and developers." At the same time, doing business in China requires heeding a negotiating style in which, "of 20 points agreed to on Monday, 18 will be taken back o Tuesday." Still, says De Chiara, the slow earl pace is both standard and worthwhile, because it means establishing the proper framework to construct a modern building.

International practice is becoming more important to American firms. Obstacles can be many, but so can rewards. On these pages, an overview of critical issues for firms thinking of taking the plunge; on the following pages, we spotlight two volatile markets.

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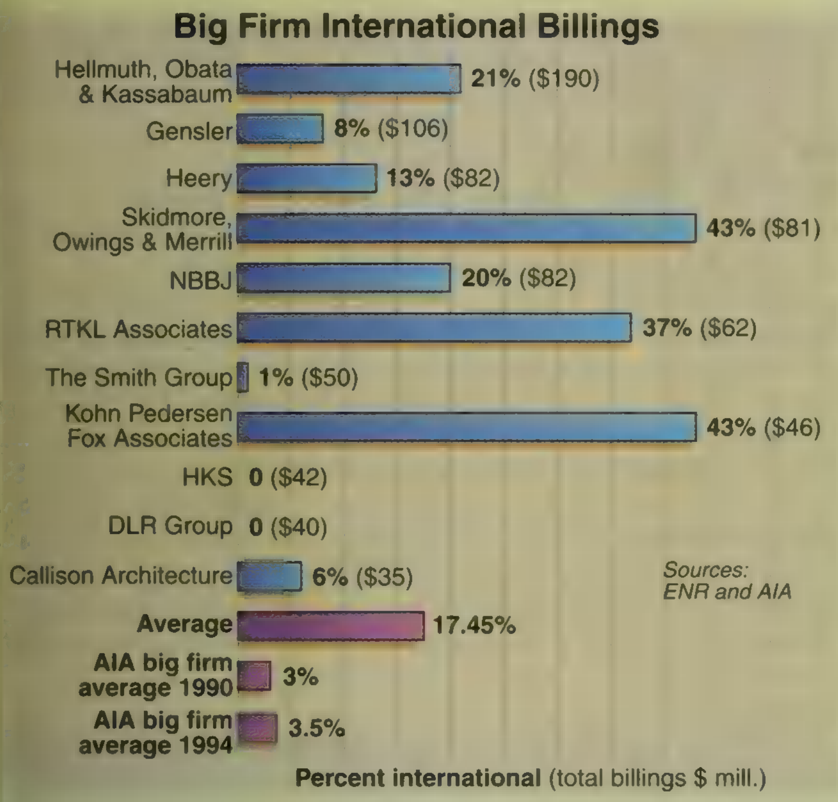

Sources: ENR and AIA

Varied Mix: *Though large firms pioneered global practice, not all do a high percentage of international work. Still, work outside the U.S. is steadily climbing. Firms listed are the largest architects and A/E's that do mostly general-building design, according to* ENR.

10-31-1998 Godwin

Construction documents are both a strength nd weakness of U.S. architects. American rchitects provide an over-abundance of etail in their working drawings, whereas verseas, many decisions are left up to the ontractors—who may change drawings often without asking) not only to suit local onditions, but to suit construction conve- ience. "We probably put too much emphasis n drawing," says Gerner. "It's really about iplomacy. If you as an architect or business erson choose to work in another culture, you ave to accept their way of doing business as posed to insisting on your way."

'Every place has a different business culture nd different priorities, from a sense of iming to reasons for making certain lecisions."—Bernardo Fort-Brescia

hose standards apply?

inding a way to handle technological ques- ons is another process that demands tience, thoroughness, and diplomacy. reign contractors may not be equipped to ndle sophisticated structural or mechanical stems, but could also be sensitive about that knowledge and technology gap. "When you go to a place like Kuala Lumpur to build a building that's larger, taller, and longer than anything else, the codes just don't apply," says Charles Thornton, a principal in the international engineering firm Thornton Tomasetti, which is building Cesar Pelli's 1,492-ft-high Petronas Towers in Kuala Lumpur. "It's an educational process to learn what does and what doesn't apply."

To adopt a code approach suitable to both project and locality, Thornton's and Pelli's offices took members of the project team to see comparable large projects in New York City and Chicago, such as the World Trade Center and the World Financial Center.

"We did a synthesis of the best of all the other codes," says Thornton. Because the team included people educated in—and biased toward—Japan, New Zealand, and Western Europe, "there were factions vying to prove theirs were the best codes. But we came up with a consensus."

The key framework for overseas work, however, is language. Arquitectonica, for example, boasts many designers with multiple languages. GKV has three Turkish speakers on staff. Fox & Fowle, a New York City firm with two large projects under construction in Shanghai, opened an office there in 1992 with Chinese-American staffers who speak the language.

12-31-1998

In the end, says Randy Gerner, there's no secret to working overseas, but you do need to walk a fine line. International clients "hire American firms because we offer something they don't have," such as specific project or technical experience. "But you have to be sensitive to the culture and understand its values, whether that means using native materials or intelligently incorporating local motifs in your design." For most U.S. firms, he says, doing neither "is a sure road to failure."

Godwin

Further Information

The AIA's International Markets and Practice Professional Interest Area offers several publications for firms interested in pursuing international work. Among them:

◆ *Getting Paid: Strategies to Ensure Payment in Foreign Markets.* 1993, $40 nonmembers, $36 members, Order no. J320. Contract provisions and dos and don'ts.

◆ *Resource Guide for Practice in Foreign Markets.* 1993, $45/$40, order no. J352. Includes prime contacts in government agencies, multilateral development banks, chambers of commerce, and other resources on foreign markets and practice issues.

◆ *International Practice Checklist.* 1993, $45/$40, order no. J353. A companion to the Resource Guide, this publication identifies the basic information architects must consider for practice outside the U.S.

To order publications, contact:
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Not For the Faint of Heart

10-31-1998 Godwin 11-1-1998 12-31-1998

By David Cohn

Though architects from the United States continue to find work in developing countries hungry for sophisticated infrastructures and the symbols of prosperity, they have also been active since the 1980s in mature economies, such as those of Western Europe, where they have had to compete with entrenched local firms and other international practices. The experiences of a number of prominent American firms that have a strong European presence is a window into the advantages and obstacles of working in the emerging global marketplace.

Americans typically enter Europe via two basic routes: through an invitation based on their international renown or under the sponsorship of a U. S. client. In order to *maintain* an active European presence, American architects must be able to secure a solid group of local clients, through participation in limited competitions and direct contacts. This effort requires special ties to a region, and may also entail substantial commitment of resources and energy.

Both Skidmore Owings & Merrill (SOM) and Kohn Pedersen Fox (KPF) opened London offices after having secured large commissions at the Canary Wharf project, which was begun in 1985 by an American developer, G. Ware Travelstead (who later sold the project to Toronto-based Olympia and York). In the same period, according to Robert Turner, current director of SOM's London office, the firm secured the commission for the 10-building Broadgate development, over Liverpool Station, from a local developer, and won a competition for the London County Hall. Currently the firm's portfolio is chiefly in Britain, but includes projects in Germany, Holland, and a handful of other countries—all for European clients.

How native do you go?

Europe, in the late 1980s, seemed poised for enormous growth in banking and other services—a golden opportunity for American firms facing precipitous declines in such work in the U.S. KPF opened its London office after Canary Wharf began construction, and has found work in basically the same countries as SOM. Its strategy has been to "go native," hiring architects for both staff and senior management positions from Holland, Germany, Spain, France, and Great Britain for projects such as Thames Court, London; provincial government offices for the Hague; and an office building in Düsseldorf. Like Turner, KPF's Lee Polisano sees the London office as a "European entity" rather than as just a branch of an American firm.

Polisano declares that "we wouldn't have gotten 90 percent of our European work if we weren't here." KPF's strategy required "a tremendous investment to start with," and, to survive the economic downturn of the 1990s, "a belief that we would succeed in the long term." KPF London has doubled its staff in the past nine months to about 80 architects. SOM, whose London staff grew to 300 during the height of Canary Wharf, is now stabilized at 35, still large by European standards, but testimony to the fact that Europe is not immune to construction cycles.

Murphy/Jahn, on the other hand, does extensive work in Germany while working entirely from its Chicago offices, sending construction documents to building sites by courier or Internet. The American developer Tishman Speyer first introduced Germany to the firm in 1985 by commissioning the Messeturm in Frankfurt [RECORD, February 1993, pages 70-77], winning the firm wide recognition.

Succeeding commissions included not only the widely publicized mixed-use project for Sony on the Potsdamer Platz in Berlin, and the one-million-sq-ft Munich Airport Center [RECORD, June 1995, pages 40-43], but more modest projects, such as the Ku-Damm 70 in Berlin that just received an AIA Honor Award. These projects were all either won in competitions (though Sony is also backed by Tishman Speyer) or obtained from local sources, drawing on the fact that Helmut Jahn is a German native.

Moore Ruble Yudell, recent winner of the competition for the U.S. Embassy in Berlin [RECORD, March 1996, pages 38-39], was first invited to Europe with Charles Moore in 1982, winning a competition for Berlin's Tegel Harbor housing. The project's success helped secure a number of luxury and large-scale housing developments—a type rarely associated with Americans—in Potsdam and other Berlin suburbs and Malmö, Sweden.

Clients like a service orientation

Not surprisingly, however, the bulk of American work in Europe continues to be in large-scale commercial development. With 82 of the world's 200 largest architectural offices here, according to a recent survey by London's *World Architecture*, Americans offer special expertise in master planning and project management.

American firms also distinguish themselves from their European colleagues through thei high level of client service and project control, according to those architects inter-

American architects have traditionally been brought in for their expertise in large commercial. Projects by firms like Kohn Pedersen Fox don't necessarily have much of an American look, however. The Guggenheim Museum in Bilbao, Spain, is groundbreaking in two ways. It's one of the few important cultural facilities entrusted to an American, and it's on the Mediterranean rim, which has not offered many opportunities for those from the U.S.

David Cohn is RECORD's Madrid-based correspondent.

Americans are still weakly represented in the “star system” of architects whose buildings re acquired as cultural status symbols by ities and patrons across Europe.

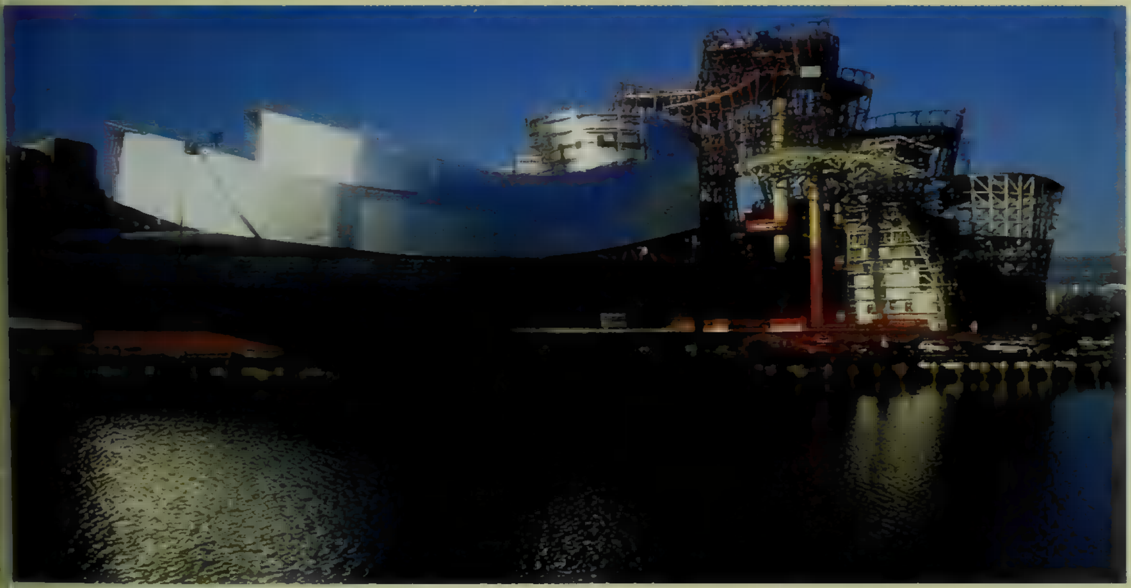
iewed. In most European countries, archi- ects leave many project details to be esolved by well-trained crafts workers or n-site, rather than through a fully detailed et of drawings. But European contractors nd clients are no longer able to count on con- istently high subcontractor quality and wners are becoming increasingly intolerant f the quality-control issues and costs of cor- ecting errors on-site. Detailed construction drawings, specifications, and close construction supervision “have made us many friends among clients,” according to Keith Palmer of Murphy/Jahn, “and made our contractors work harder than they are accustomed to.” SOM and KPF also insist on doing all working drawings in-house to maintain quality standards, limiting the role of local architects. KPF’s Polisano says, “we only use them if we’re asked to by the client.”

Breaking out of the commercial mold

Given their size and volume of work, Americans are still weakly represented in the “star system” of internationally known architects whose buildings are acquired as cultural status symbols by cities and patrons across Europe. Only Richard Meier and Frank O. Gehry are currently considered in the top rank, with the work of Philip Johnson, Pei Cobb Freed, and Cesar Pelli relegated to a secondary, commercial level. A smattering of Americans, introduced through academic and artistic circles, are also taken seriously: Peter Eisenman, John Hejduk, and Steven Holl.

Palmer, of Murphy/Jahn, notes that Americans got their feet wet in Europe 10 or 12 years ago when nearly every European city

Continued on page 150



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1. The Guggenheim Museum, Bilbao, Spain, designed by Frank O. Gehry and Associates.

2. Thames Court, London, is a mixed-use project designed by Kohn Pedersen Fox Associates' London office.

3. KPF designed this 325,000 sq ft office building for a site in Düsseldorf, Germany.

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3

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Peso's Down But Americas Aren't Out

By Peter Slatin

As the economy of the northeastern United States contracted in the late 1980's and early 90's and the opportunities for overseas work expanded, work-starved architects began looking south of the border for design employment opportunities. But for many who gained a foothold in Mexico and were encouraged by the passage of NAFTA, another shock was in store: the sharp devaluation of the Mexican peso in December 1994, which put the country's economy in "the dumper."

That's according to Leon Manoff, a senior managing director at Williams Real Estate, an international firm based in Manhattan. "Here, we don't have a true sense of the pressures they face—economic deflation of 7 percent. It's an induced, severe depression," says Manoff, who grew up in Mexico City and has made numerous real-estate deals for institutions such as Republic National Bank.

Shifting gears

But the dislocation nonetheless has a bright side, not only for Mexico but also for U.S. firms seeking opportunity there. Manoff notes that despite the hard times, the political situation remains stable, suggesting long-term benefits. "There's no threat of rescinding policies meant to democratize business and move forward," he says. In addition, "there is a consensus that the economy has bottomed—the mood has gone from suicidal to glum."

That assessment has several implications for U.S. architects. First, the long-term outlook for new-office construction is relatively bleak. However, the market for corporate interiors and industrial work is now starting to improve, according to those on the scene.

"At least 60 percent of the projects we had won before devaluation went on hold," says Roger Soto, who heads HOK's three-year-old Mexico City office. "So we shifted our practice from primarily architecture to interiors, for which there is a continuing demand." As a result, says Soto, the office—which he founded—now includes 20 architects.

"The key," Soto continues, "is having a local office with people trained in the American standard of practice. But you've also got to adapt to reality, because it's a developing country, and they do things very differently."

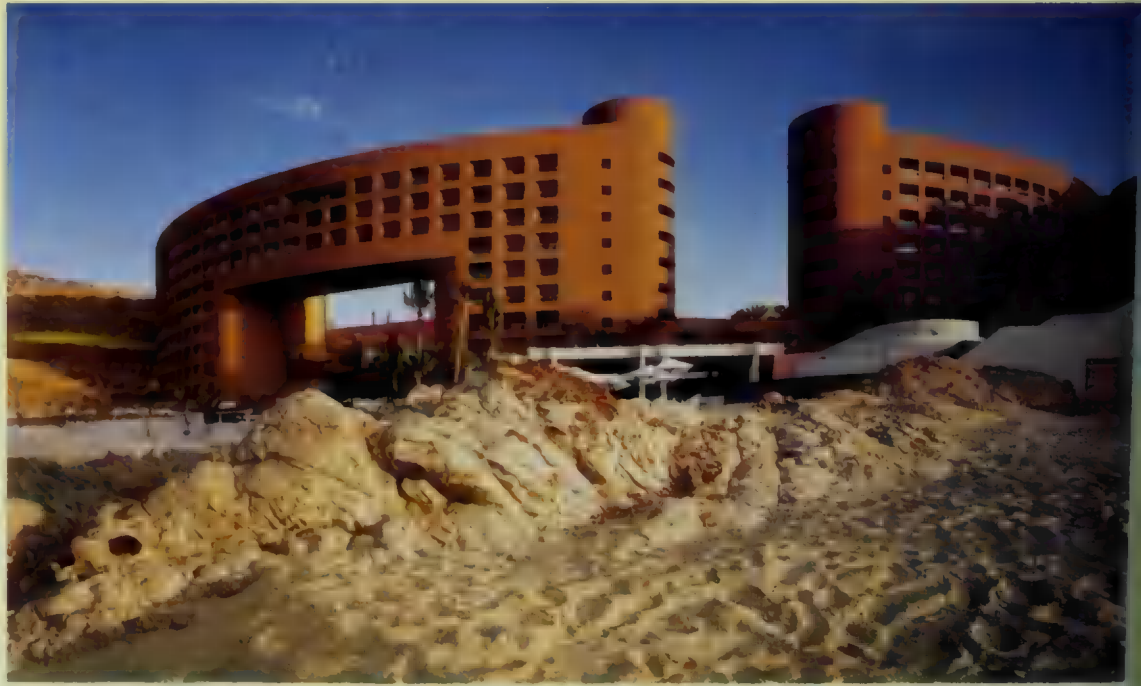
The clients "just giggled"

Andres Andujar, a senior vice president at 3D/International in Dallas—which has completed some 30 projects in Mexico—remembers a meeting at which plans for a luxury maternity suite at a women's hospital in Monterrey were unveiled. The clients "just giggled" at the room layouts. Though based on typical luxury suites in the U.S., they were far too small. "In the states you get a handful of visitors because you don't want to bother the mother. In Mexico, a new mother would expect 27 visitors a day. There, it's not polite not to go."

3D/I, too, experienced a significant dropoff in work following the peso devaluation—as, of course, did local architects. But Andujar says the firm has found a way to leverage that shortfall: "We're taking advantage of the situation to do some production, buying CAD drafting expertise for our Latin American projects."

In other words, 3D/I and other firms have found Mexican architects to be a lower-cost source of professional expertise who are also culturally acclimated to the South American market. "Sometimes the cost of the work is less than half the price that would have been budgeted to do it stateside," adds Andujar.

Peter Slatin writes on architecture and real estate for The New York Post *and other publications.*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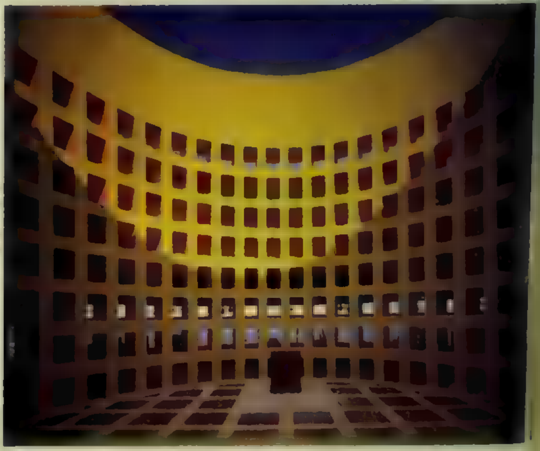
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Large-scale projects in Mexico are no longer the province of large firms from out of the country. This Westin Regina Los Cabos hotel was designed by Sordo Madaleno Arquitectos of Mexico City. The room wings embrace and traverse the dramatic landscape (1), while a monumental courtyard (2) creates an oasis-like place of repose.

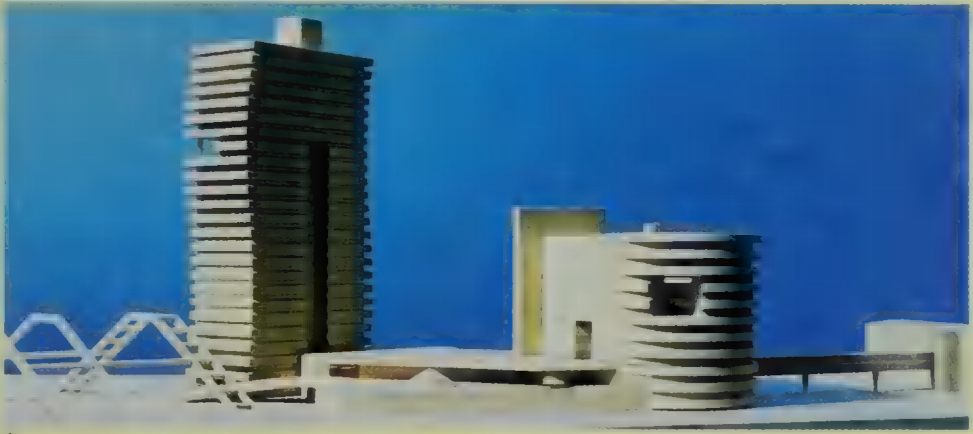
n Mexico, "there is a consensus that the conomy has bottomed: the mood has gone rom suicidal to glum."—Leon Manoff

ndeed, as the Mexican pie has shrunk, the ounty elsewhere in the region has grown. rgentina and especially Brazil are proving be extremely active development markets, ith Chile, Colombia, Peru, and Venezuela ot far behind.

he Miami-based firm Spillis Candela has ken steps to extend and solidify its out-ach in the hemisphere. In late May, the firm held a three-day symposium for the dozen or so firms it associates with throughout Latin America. In addition, says senior partner Julio Grabiel, the firm invited client representatives and real-estate and financing professionals—all the expertise needed to get projects into the ground. The idea, he says, was "to create a more formal relationship" among the members of the group. "If you don't have a good rapport with your associates, it makes it impossible to accomplish anything," says Grabiel. "You have to have complete faith and trust in your associates, a mutual respect and a clear definition of responsibility."

One purely practical reason for this interdependence, he says, is that it is a mistake to take Central and South America as an undifferentiated region. "There are technical language changes in each country that you need to learn, and there are nuances within those," he says. "You have to be very careful and sensitive." Miami's role as gateway to Latin America also helps. Both Spillis Candela and Arquitectonica, another Miami-based firm active in Latin America countries, can hire from an abundant supply of architects from Central and South America. ■

3



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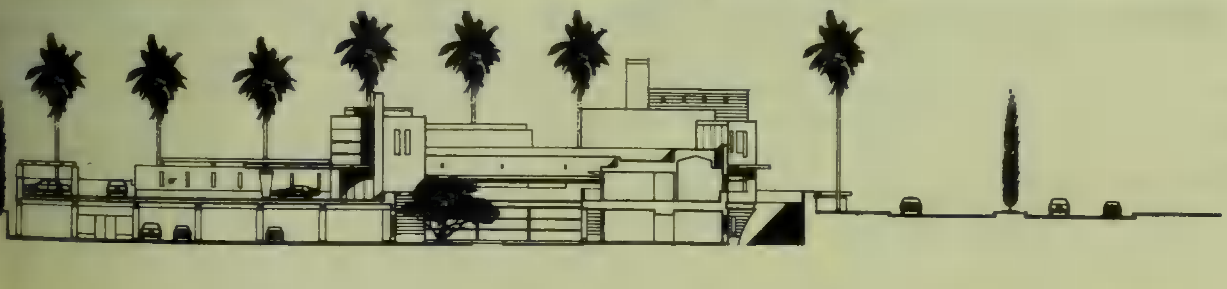


6

Three projects by Miami-based Arquitectonica testify to the variety and sophistication of work in South America.
3.Four Seasons Complex in Caracas, Venezuela. The 37-story structure includes hotel-serviced apartments and retail facilities.
4. Parque Fundidora Convention Center Hotel in Monterrey, Mexico: a 500 room hotel.
5. Palos Grandes Condominium Towers, Caracas, Venezuela: a pair of apartment towers on hilltop overlooking the city.
6. RTKL Associates offers most workers direct access to terraced gardens in new headquarters designed for Gentor Corporation, in Monterrey, Mexico.

Wider Service Scope Promises Profits

By Sheri Olson

A lingering legacy of architecture's extended recession is that firms sense a continued inability to negotiate adequate fees. This is at a time when the marketplace is able to support higher fees and other improved contract conditions. Not all firms are held in the grip of such expectations, however. An increasing number are able to charge above-average fees. The gap between firms that are able to obtain high fees and those that cannot is one of the significant trends reported in Professional Services Management Journal (PSMJ)'s "1996 Design Services Fee Survey."

In general, the survey finds that fee levels are somewhat higher over last year while contract terms have only marginally improved. While this picture remains mixed, PSMJ and others analyzing compensation trends are now able to sketch new scenarios for firms to boost fees and profits.

Some trends:
- ◆ PSMJ found higher total revenues for government work, but billing rates that are lower and contract conditions less favorable than for private-sector clients.
- ◆ Fee bidding rises and fall as it goes in and out of favor with clients.
- ◆ It is becoming rarer for design firms to offer only a basic scope of services (as defined in AIA's document B141). As projects become increasingly specialized and diversified, clients seek a wider range of one-stop services, and architects find many "expanded" services more profitable.

Billing rates improving

In a continuing trend over the past three years, staff billing rates have been increasing 2 to 3 percent annually—in line with inflation. In PSMJ's survey, this increase is uniform across nearly all staff levels. Only rates for principals, where the average is $111 an hour, have held steady.

Billing rates may differ as much as 20 percent among firms, and are highest in the West and lowest in the Mountain states, Southwest, and Midwest. The survey covered a range of architectural, engineering, and multi-discipline firms. By firm type, engineering and A/E/P rates tend to be higher than architects'.

Overall revenues are also on the rise, but slowly. Thirty-five percent of firms reported gains in a recent AIA "Work on the Boards" survey, with the largest proportion reporting an increase over six months. At the same time, however, a higher percentage of fees is going to engineers due to environmental, life-safety, and energy demands.

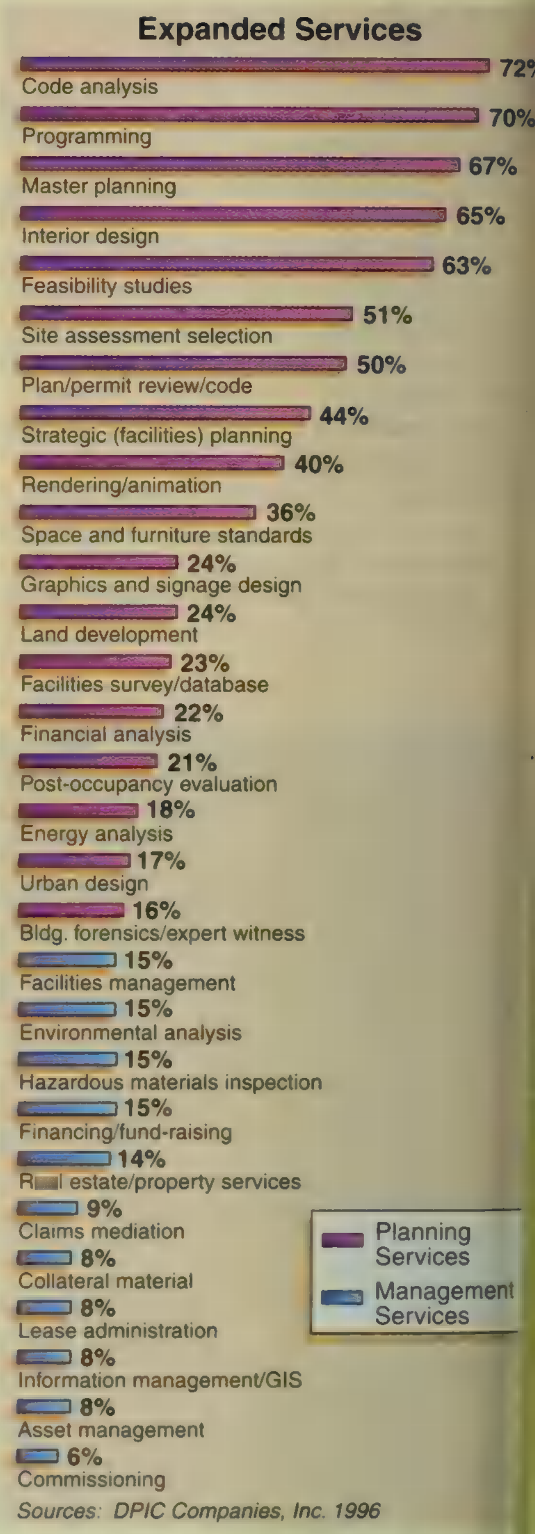
While increases in billing rates and revenues may be anemic, some firms are more profitable than ever. "Firms are achieving the best profit figures of the decade by diligently controlling their indirect expenses and maintaining extraordinarily low overhead rates," says Neil Holmes, a senior associate at Harper and Shuman, makers of CFMS financial-management software. Their 1995 survey of 230 client firms reports a 10 percent decrease in overhead rates over the past three years. Firms have achieved these record low rates by renegotiating leases, changing benefit packages, and reducing non-technical staff. Since there is a limit to how "lean" a firm can become, Holmes says this trend is not expected to continue.

The diverse performance of various building types also affects the design-services marketplace. William F. Fanning, research director at PSMJ, predicts big growth for industrial projects (high tech, communications, research labs, and pharmaceutical), commercial users (stores and food service), and commercial-development clients (build-to-suit, not speculative). Retrofitting and renovation of offices, shopping centers, and housing remain strong, keeping facilities management, space planning, and interior design services in demand, says Fanning. [See also RECORD's architectural marketplace outlooks, June 1996, pages 36-39.]

Negotiating is key to higher fees

For many building types that saw fees drop during the recession, better compensation is increasingly the norm. A notable trend revealed by PSMJ's survey is the increase in the upper quartile of fees as a percentage of construction costs, indicating that some architects are obtaining much higher than

Sheri Olson is a teacher, writer, and architect with her own firm newly relocated to Seattle.



Sources: DPIC Companies, Inc. 1996

While nearly all firms surveyed offered so services beyond those defined as basic in AIA's B141, the amount of fee income deri from such services remains small. The pla ning tasks, mostly offered prior to design, make up a higher percentage of services offered than management fees—an area of increasing opportunity for architects, according to numerous experts.

recent fee survey suggests strategies design firms can use to escape he trap of commodity pricing for commodity services.

verage payments. “In the past, differences fee levels adhered to building types to me extent,” explains Fanning, “but now ere appears to be more diversity in fees ven within a building type.”

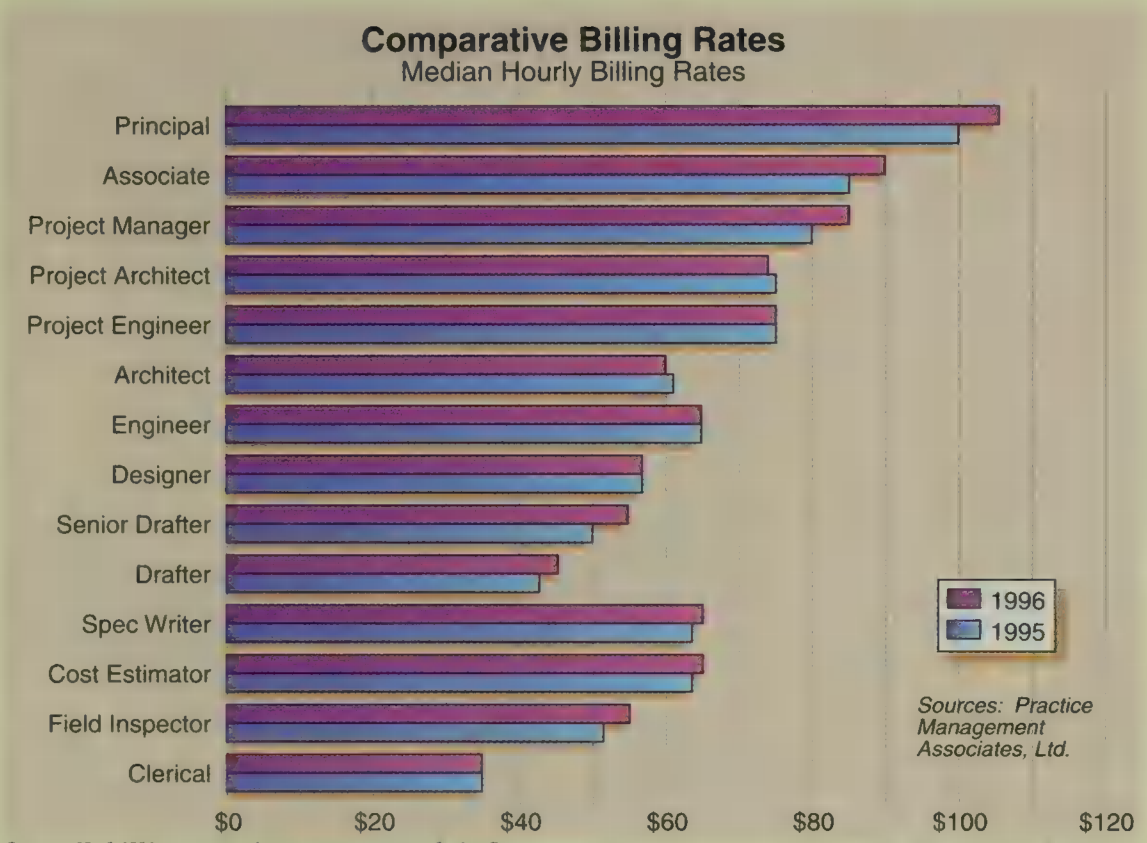
wners appear willing to pay more for ertain qualities or services: signature esign, technological expertise, or an ability deliver a wide scope of services. More nportant may be a firm's ability to negotiate es and contract conditions. “The firms that e getting higher fees are the ones that en't afraid to ask for them, and have a rategy for negotiating them,” says PSMJ ublisher Frank Stasiowski.

aught in a highly competitive marketplace, me firms believe they can't push fees up. ften our low fee is a major criterion in our election,” says Stephen Dietemann of Archi- ctural Collaborative Services, a two-person fice in Troy, N. Y. “We offer low fees simply ecause sometimes a low fee beats no fee.” ccording to Fred Stitt, editor/publisher of e Guidelines series on professional practice, ften it's firms that are small, young, or in a nancial bind that fall into a pattern of not etting appropriate fees.” There's no magic breaking out of this cycle, says Stitt. He d others have long advocated a focused proach to improving contracts: gathering tailed information on what other firms arge, adding up what it costs to do the ork (more predictable than many imagine), d learning better negotiating skills.

fees are insufficient to cover the perfor- ance of the services, it can cause financial stability and increase liability problems for chitects. “Adequate fees are an important y for architects to prevent or reduce the sts of claims,” says Ava J. Abramowitz, a e president at liability insurer Schinnerer anagement Services. “According to a rvey of our insureds, claims do occur when es are too low to provide the required ser- es or qualified personnel, ” she explains. ur insureds told us a sufficient fee is a ims preventer. What may be short-term ent savings are usually a long-term loss.”

overnment drives a hard bargain

hile total revenues from government-sector rk have increased, billing rates have fallen.



Comparative Billing Rates
Median Hourly Billing Rates

Sources: Practice Management Associates, Ltd.

Overall, billing-rate increases match inflation. Though medians are reflected above, principals in small firms are able to bill only around $100 an hour, while principals in 500-plus person firms are able to bill $150. Architectural, engineering, and A/E billing rates are similar. Billing rates for A/E/Ps and corporate interiors firms are higher.

PSMJ's Stasiowski believes dollars per project are up because the government is becoming less efficient at managing architects and engineers. “Often the government is buying more total hours per project than originally negotiated due to internal inefficiencies that cause charges for change orders and extras,” he explains. Government is also reacting to balanced-budget and anti-tax fever in two ways: outsourcing more work to consultants, including architects, while using its status as a major consumer of design services to drive hard bargains.

Negotiating better fees on public work is becoming more difficult, due to statutory limitations. According to PSMJ, 65 percent of firms reported fixed limits on billing rates, annual salary, and reimbursable costs. Many agencies also fix maximums on lump-sum architectural and engineering design fees.

Limitations may differ regionally or within an agency and may not be uniformly enforced. High-effort tasks are often required on government projects, such as detailed cost estimates, written reports on design choices, or full-time site observation, further reducing the potential for profit. A government client may require use of a given CAD software, and require “deliverables” compatible with its hardware/software setup.

Despite such barriers, some firms are able to obtain higher fees and more favorable contract conditions on government work. Short Elliott Hendrickson, St. Paul, is a 300-person A/E firm that earns 75 to 80 percent of its revenues from public projects. Director of architecture, Lew Moran, believes that success depends on understanding the government's language, approach, and fee structures. An advertised fee of 5 to 6 percent of construction cost may appear to be unrealistically low, explains Moran, but the scope covered by the advertised services could be so limited that a profitable fee may be negotiated on the scope the agency actually requires.

William Fanning is research director at PSMJ Resources, Inc.

Fee bidding isn't going away

Competing for commissions on the basis of price remains one of the profession's knottiest problems. The good news is that the PSMJ survey reports a slight decrease in the practice. "This may be the first sign that fee bidding has passed its peak in popularity," reports Fanning. According to PSMJ, 68 percent of A/E firms and 43 percent of architecture firms participate in some kind of price competition, even as most professionals strongly oppose the practice as causing them to choose between delivering adequate quality and getting the job. Ironically, design firms appear to be guilty of that which they decry, increasingly using fee bidding when hiring consultants, says PSMJ.

The good news is that the PSMJ survey reports a slight decrease in fee bidding. "This may be the first sign that fee bidding has passed its peak in popularity."

PSMJ data over a 10-year period show fee bidding rising and declining by building type over time. Typically, fee bidding increases in a market as construction volume falls. Firms feel the pressure to lower fees to keep experienced staff busy. Fee bidding appears to decline as firms move to more profitable types and as clients get poor results.

Price competition doesn't always drive fees down. Instead, many principals say they react to fee bidding requests by carefully circumscribing or reducing the scope of services to match the fees available. Some typical basic services, such as pre-design, are eliminated or provided only when clients request them, and are charged as additional services. Whether clients pay more through additional services or costly fixes in construction, the opportunities for real client savings are minimal, according to Stitt.

Scope of services and profitability

"The long term danger of fee competition," says Stasiowski, "is in the increased likelihood of clients viewing design services as a commodity." Indeed, clients who choose designers primarily on a price basis are saying either that they don't see enough difference in the quality or service firms offer to merit different compensation, or they don't value better service or greater attention to quality that firms who charge higher fees presumably offer.

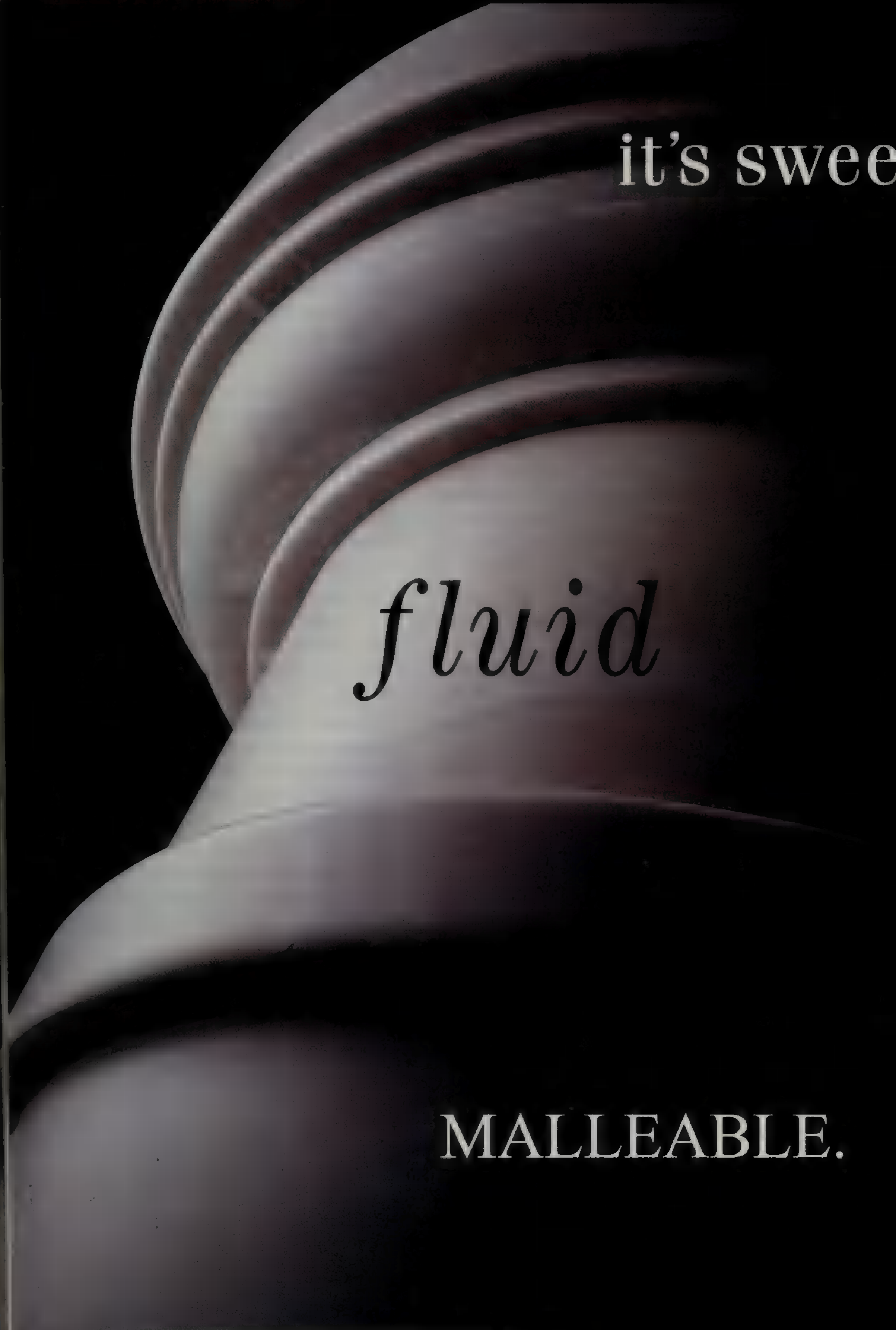
Some firms give clients greater choice over how fees are spent by using scope of services as a bargaining tool during contract negotiations. "As clients become more insistent on negotiating fees and contract conditions," says Robert Buford, managing partner at Robert A.M. Stern Architects, New York City, "we are becoming more careful about defining the scope of work and billing for extra services."

Other firms find that scope is another way for clients to drive a hard bargain. "For some projects, fees haven't changed much but we are being asked to provide more services for the same amount," says Lew Moran. One trend PSMJ's survey identifies is that fees for a standard scope of services have become in large part "commodified." Firms achieve better contracts and fees by customizing or expanding services. A recent DPIC survey (previous pages) reports that firms of all sizes are offering one or more expanded services. The larger the firm, the greater the likelihood that expanded services are being offered. Smaller firms generate a larger percentage o their fees from these services when they do offer them. "In the future, 30 to 40 percent of architectural services may not be directly related to building a building; challenging the very idea of a basic scope of services," predicts Richard Hobbs, vice president of professional practice at the AIA. [For more on expanded services, see RECORD, February 1996, pages 32-35, 110.]

A wider range of services creates a corresponding range in methods to determine and contract for fees. Currently, lump-sum fees remain the most popular, but, says, Stitt, "An increasing number of firms are billing hourly for design development and construction administration, while charging a fixed fee for construction documents." He sees the trend continuing, predicting that more than half of projects will bill through this method within the next three years.

Another way for firms to increase profitability is to offer what Frank Stasiowski refers to as "knowledge-based services." He believes higher fees are going to firms that can offer highly specialized expertise, such as strategic facilities planning, asset management, or environmental and energy consulting. "Architects need to sell knowledge, not production," says Stasiowski. Charging on the basis of clients' assessment of the value of services, he believes, is the long-term key to increasin profitability. ■

To obtain copies of the 1996 Design Services Fee Survey ($195), contact:
PSMJ Resources, Inc.
10 Midland Avenue
Newton, MA 02158
617/965-0055; 617/965-5152 (fax);
psmj@ix.netcom.com (e-mail)



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The Web Takes Off

By B.J. Novitski

Compared to this time last year, the world of on-line information services has transformed itself, both quantitatively and qualitatively [RECORD, March 1995, pages 40-41, 113]. Until recently, most services were holdovers from the electronic "bulletin boards" (BBSs) popular among hobbyists in the 1980s. In these users dial into a computer to retrieve files or exchange messages with other users.

There are still dozens of such BBSs that specialize in construction-related information or CAD software. But increasingly, these self-contained dial-in services, such as AECNET, Northport, N.Y., are moving their content onto the emerging giant, the World Wide Web (http://www.aecnet.com). The Web is the graphic, easy-to-navigate portion of the Internet, the vast network that links large computers throughout the world. And it's not just the smaller BBSs that are losing ground to the Web. The two largest commercial on-line services, America Online and CompuServe, have recently developed links that give their users a "gateway" to the Internet. At this writing, the access is still limited, but rapidly improving.

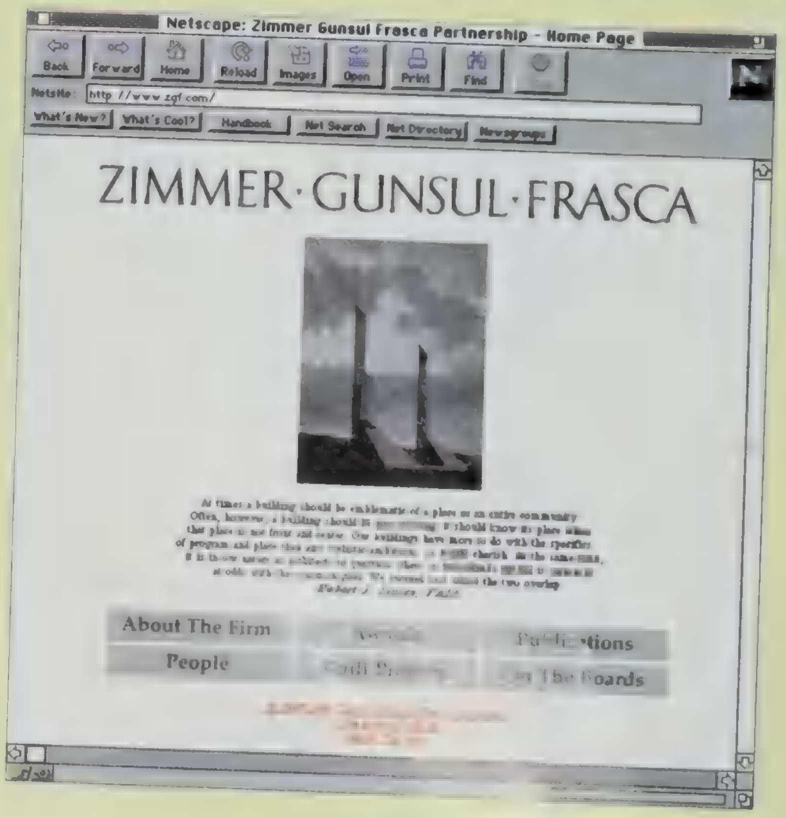
B.J. Novitski is a freelance writer specializing in the use of computers in architectural practice and education. She can be reached at bjn@efn.org

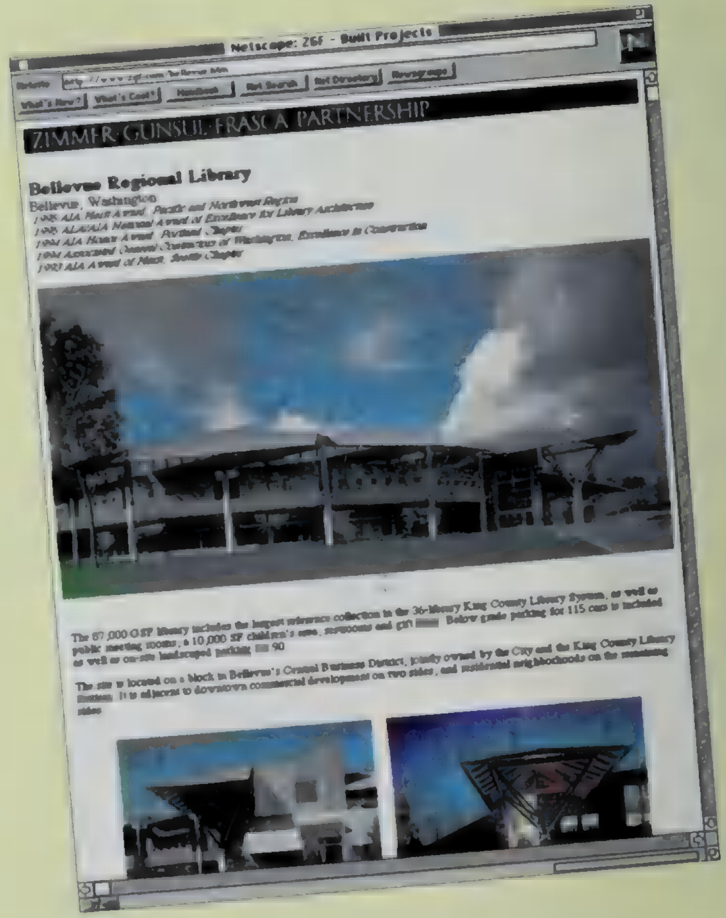
Suddenly, a huge amount of information is readily available. How will this help architects? The good news is that the new medium offers professionals an inexpensive way to publish—as well as read—vast quantities of information. The bad news is that finding useful material in all the Internet's vastness is not always easy. Many Web sites do not stand up under close scrutiny; behind their pretty pictures and superficial descriptions are few helpful specifics.

A wealth of resources?

The World Wide Web is potentially an important source of information from building product manufacturers. Several Web sites promise links to manufacturers' data, but most offer only names, addresses, and phone numbers. So far, there are few manufacturers' sites that are substantive. In an ideal future, the Web will be a cornucopia, offering interactive design tools and CAD drawings and guide specifications for downloading to project files. In fact, the Web could become the primary source of technical information, replacing binders and catalogs. It will likely be a relatively inexpensive way for manufacturers to keep their data current, and increasingly easy for architects to use.

Sweet's Group Online (http://www.sweets.com/) and Architects First Source (http://www.afsonl.com/) are working toward this goal. [Sweet's is part of The McGraw-Hill Companies as is RECORD.] Of Sweet's nearly 6,000 on-line listings, 700 contain a one-page company overview, or "showcase." The Web site now offers all the information available on the SweetSource CD-ROM; including text, specifications, tables, illustrations, and drawings. But such a resource can never be complete until it contains Web links that at the click of a mouse move you directly to the manufacturer's own site. Architects First Source now offers only about 30 links. They can't offer many more until more manufacturers go on-line.





Netscape: ZGF - Built Projects
What's New?
What's Cool?
Handbook
Net Search
Net Directory
Newsgroups
ZIMMER·GUNSUL·FRASCA PARTNERSHIP
Bellevue Regional Library
Bellevue, Washington

Though there has been a massive shift of electronic resources from private services to the World Wide Web, its great promise for architecture is far from being realized.

Interactive research

Hundreds, if not thousands of organizations, both public and private, now have Web sites. Many of them describe the organization, promote membership, and provide links to related sites, but don't offer much additional content. One site that offers much more is the Royal Architectural Institute of Canada (RAIC), sister organization to the American Institute of Architects (AIA). While the Web site (http://www.aecinfo.com/raic/) describes paper-based publications, symposia, research, and the practice committees that form the backbone of the organization, it also has useful interactive features available to members. For example, the Technical Enquiries area invites small-to-medium-sized firms to submit questions that are answered by an advisor sponsored by the National Research Council. Assistance is available for, among other things, defining technical needs, solving production problems, and acquiring expertise.

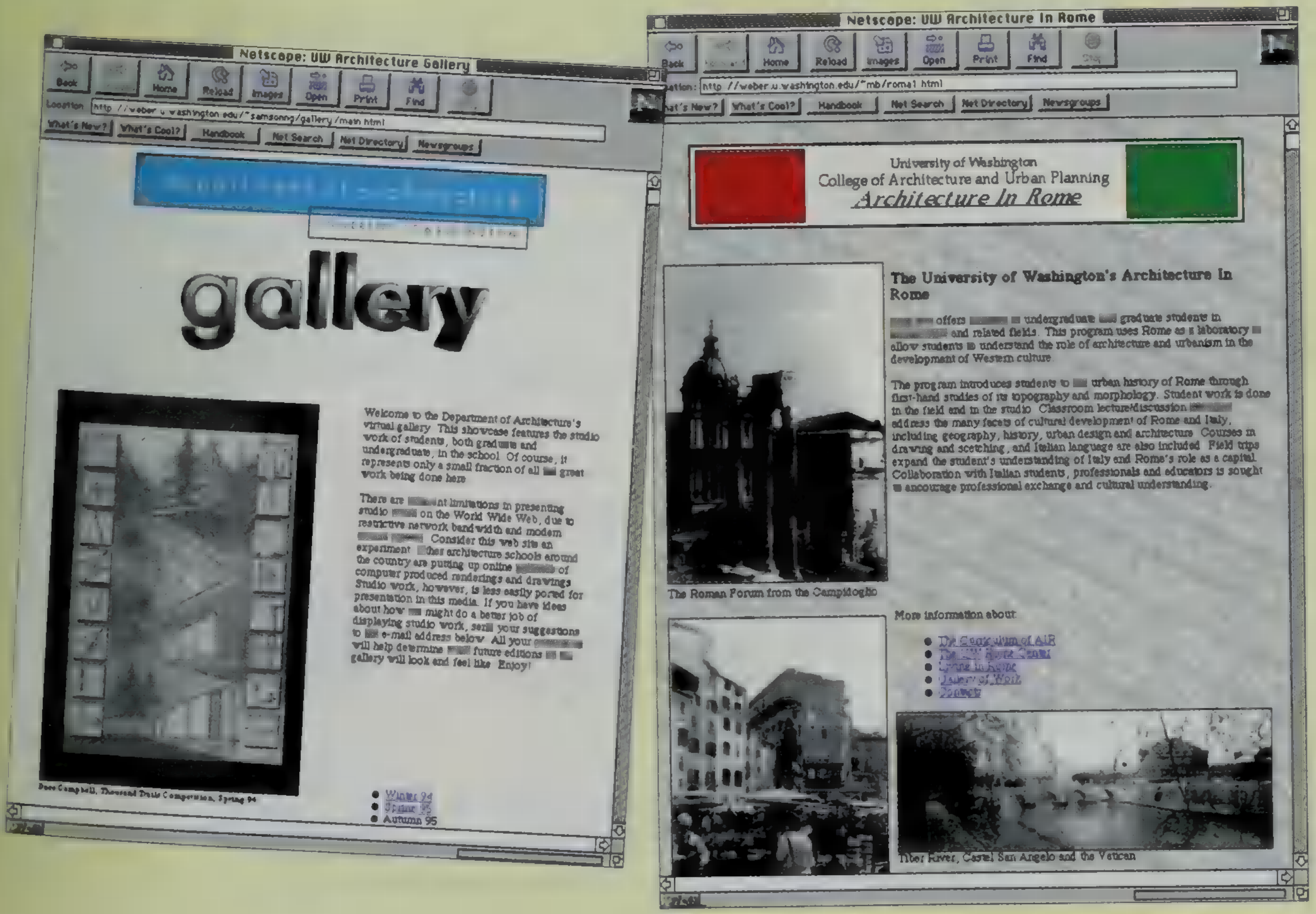
Purportedly offering technical assistance are hundreds of research centers' Web pages, but most describe their activities in terms so general they provide little practical value for practitioners. One exception, the Rocky Mountain Institute (http://solstice.crest.org/efficiency/rmi/index.html), known for its pioneering work in the area of sustainable design and energy conservation, publishes actual research results, which are available for downloading at no charge. Typical guidance includes recommendations on how to design efficient residential lighting and how to retrofit existing windows for minimizing leakage and best solar gain.

Codes and standards on-line

Standards organizations offer sites that vary greatly in usefulness. Non-governmental organizations like the American National Standards Institute (ANSI) and the International Organization for Standardization (ISO) depend on sales for financial support, so their Web sites do not offer free copies of standards. Instead, they publish on-line catalogs, complete with ordering information. In contrast, the Department of Defense Tri-Service CADD/GIS Technology Center electronically publishes its standards on the Web, which are available for downloading (http://mr2.wes.army.mil/). The Center also invites visitors to comment on standards under development. At this writing, for example, it seeks input on architect/engineer CAD deliverables for firms contracting with Tri-Service. In fostering a dialog, Tri-Service is recognizing one of the strengths of on-line technology: it's easy for users to participate.

Not surprisingly, because the Web is still dominated by the technical vanguard, a disproportionate number of sites have been created by software vendors. These usually provide a combination of marketing and technical information. A vendor's site might describe the latest products and customer services, offer a demonstration version for free downloading, and give the e-mail address of technical support staff who can answer questions about the products.

One software developer that caters particularly to architects is Bentley Systems, makers of MicroStation CAD software and related tools. In addition to product literature and technical assistance, Bentley's Web site (http://www.bentley.com/) actively engages its



Welcome to the Department of Architecture's virtual gallery. This showcase features the studio work of students, both graduate and undergraduate, in the school. Of course, it represents only a small fraction of all [illegible] great work being done here.

There are [illegible] limitations in presenting studio [illegible] on the World Wide Web, due to restrictive network bandwidth and modem [illegible]. Consider this web site an experiment. [illegible] architecture schools around the country are putting up online [illegible] of computer produced renderings and drawings. Studio work, however, is less easily ported for presentation in this media. If you have ideas about how [illegible] might do a better job of displaying studio work, send your suggestions to [illegible] e-mail address below. All your [illegible] will help determine [illegible] future editions [illegible] gallery will look and feel like. Enjoy!

- Winter 94
- Spring 95
- Autumn 95

The University of Washington's Architecture In Rome

[illegible] offers [illegible] undergraduate [illegible] graduate students in [illegible] and related fields. This program uses Rome as a laboratory [illegible] allow students [illegible] understand the role of architecture and urbanism in the development of Western culture.

The program introduces students to [illegible] urban history of Rome through first-hand studies of its topography and morphology. Student work is done in the field and in the studio. Classroom lecture/discussion [illegible] address the many facets of cultural development of Rome and Italy, including geography, history, urban design and architecture. Courses in drawing and sketching, and Italian language are also included. Field trips expand the student's understanding of Italy and Rome's role as a capital. Collaboration with Italian students, professionals and educators is sought [illegible] encourage professional exchange and cultural understanding.

The Roman Forum from the Campidoglio

More information about:

Tiber River, Castel San Angelo and the Vatican

Zimmer Gunsul Frasca uses its Web pages to communicate to wired users as well as to show its work (opposite). Students of University of Washington architecture professor Brian Johnson mounted hand drawings on the Web as an experiment (left), and have tried out its potential as a long-distance design studio (http://www.caup.washington.edu/courses/Arch499/).

Not all the action has moved to the World Wide Web. There are still viable resources for architects on commercial and private services.

visitors, giving customers a "gallery" in which to display the work they've created with Bentley products. The site also announces Bentley-sponsored competitions.

Commercial services

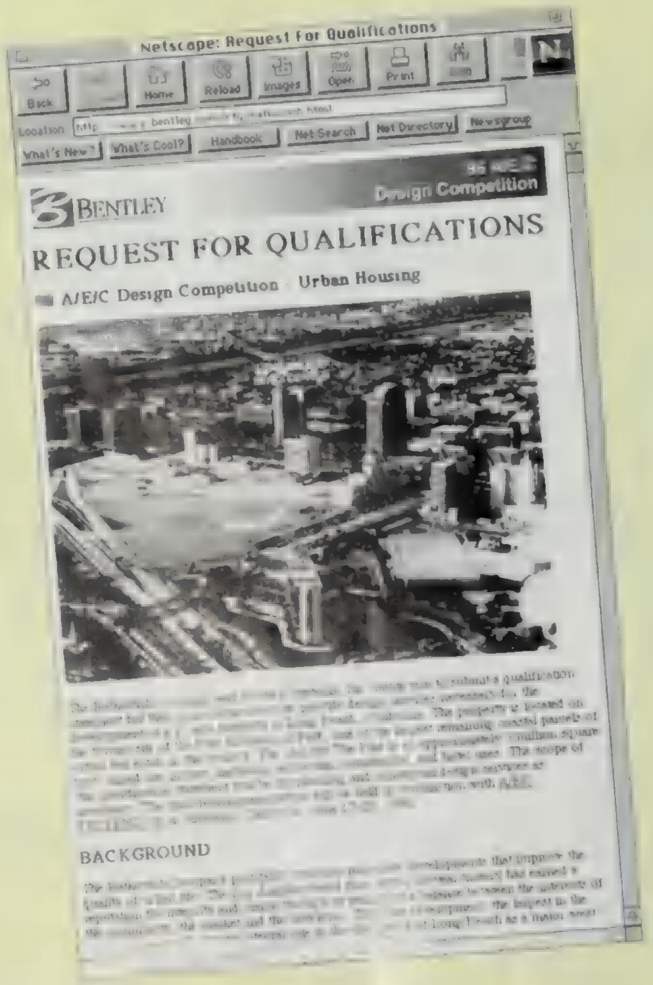
Not all the action has moved to the World Wide Web. There are still viable resources for architects on CompuServe, America Online, and a few architecture-specific private services. Although they suffer from limited connections to the rest of the Internet, each has its strong points.

◆ *AIAOnline,* the several-year-old service of the AIA, has recently undergone a face lift, and is now available for Windows 3.1 (opposite). Now, AIAOnline can display color images including photographs, charts, and illustrated journal articles. Darrell Lewis, AIAOnline's director, says of the service, "It can provide a one-stop shop for news and information about the AIA and member services, project and business-development leads, publications and services, and issues that affect you and your business every day." Although the AIA also has a presence open to all on the Web (http://www.aia.org/), it still maintains the private service as a member benefit, with resources not available anywhere else.

◆ *CompuServe,* now the world's second largest commercial information service, has long been the resource of choice for business professionals. Like the Web, it provides news and information, but unlike the Web, it abounds with interactive forums in which people "discuss" shared interests. Recently CompuServe established a forum just for architects (GO ARCH). Led by Oakland, Calif. architect Linda Joy Weinstein, it includes two dozen sections on topics such as client services, education, marketing, historic resources, and so on. Each topic has ongoing discussions and a library of related information. Additional public and private subforums will be available for organizations and manufacturers.

A new CompuServe operating system will give the architecture forum more graphic capabilities than have been available in the past, especially for live, interactive electronic conferences. Weinstein explains: "This allows, for example, photographs or video to appear during conferences, like a slide show or full-featured video conferencing." She expects the forum to attract architects and related professionals as well as the interested public. "There is so much for professionals and laypeople to learn from each other," she says, "if we come down from the ivory towers occasionally. For instance, it would be invaluable for architects, builders, and building owners to be able to bypass the jargon of the Americans with Disabilities Act and talk directly to the disabled community about what their specific needs are and how we can provide for them in a creative and economically sound way."

◆ *America Online* (AOL), the largest commercial information service, is also changing rapidly, with new graphics capabilities and links to the World Wide Web. Like CompuServe, AOL supports chat rooms, in which users can "talk" to each other by taking turns typing comments that appear on the others' computer screens. Although primarily a consumer service, AOL has forums on home



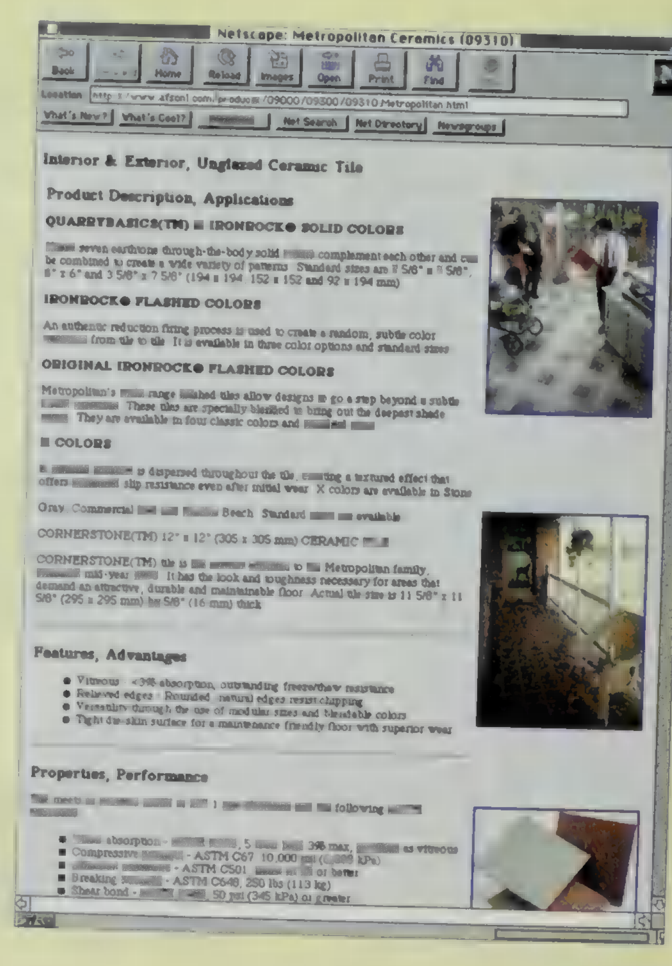
BENTLEY

Design Competition

REQUEST FOR QUALIFICATIONS

A/E/C Design Competition · Urban Housing

BACKGROUND



Interior & Exterior, Unglazed Ceramic Tile

Product Description, Applications

QUARRYBASICS(TM) ■ IRONROCK● SOLID COLORS

[illegible] seven earthtone through-the-body solid [illegible] complement each other and can be combined to create a wide variety of patterns. Standard sizes are [illegible] 5/8" x [illegible] 5/8", [illegible]" x 6" and 3 5/8" x 7 5/8" (194 x 194, 152 x 152 and 92 x 194 mm)

IRONROCK● FLASHED COLORS

An authentic reduction firing process is used to create a random, subtle color [illegible] from tile to tile. It is available in three color options and standard sizes

ORIGINAL IRONROCK● FLASHED COLORS

Metropolitan's [illegible] range flashed tiles allow designs to go a step beyond a subtle [illegible]. These tiles are specially blended to bring out the deepest shade [illegible]. They are available in four classic colors and [illegible]

■ COLORS

[illegible] is dispersed throughout the tile, creating a textured effect that offers [illegible] slip resistance even after initial wear. X colors are available in Stone Gray, Commercial [illegible] Beach. Standard [illegible] available

CORNERSTONE(TM) 12" x 12" (305 x 305 mm) CERAMIC [illegible]

CORNERSTONE(TM) tile is [illegible] to the Metropolitan family [illegible] mid-year [illegible]. It has the look and toughness necessary for areas that demand an attractive, durable and maintainable floor. Actual tile size is 11 5/8" x 11 5/8" (295 x 295 mm) by 5/8" (16 mm) thick

Features, Advantages

- Vitreous - <3% absorption, outstanding freeze/thaw resistance
- Relieved edges - Rounded, natural edges resist chipping
- Versatility through the use of modular sizes and blendable colors
- Tight die-skin surface for a maintenance friendly floor with superior wear

Properties, Performance

[illegible] meets [illegible] following [illegible]

- [illegible] absorption - [illegible], 5 [illegible] 3% max, [illegible] as vitreous
- Compressive [illegible] - ASTM C67, 10,000 psi ([illegible] kPa)
- [illegible] - ASTM C501, [illegible] or better
- Breaking [illegible] - ASTM C648, 250 lbs (113 kg)
- Shear bond - [illegible], 50 psi (345 kPa) or greater

building and planning and one with a specifically architectural focus. On "PLACES for the Built Environment," users "meet" to discuss issues. (PLACES stands for planning, landscape design, architecture, construction, engineering, and specifications.) New links give visitors access to the Commerce Business Daily, Internet sites, and other construction-related forums.

◆ *Architecture Online,* for the more literary-minded, is from Princeton Architectural Press. Like AIAOnline, this service has a small public Web site (http:/www.designsys.com/pap), but most of its bounty is available only through a BBS. Offerings include articles by architectural critics and historians, bibliographies, illustrated exhibition announcements, and chat rooms.

Princeton Architectural Press gives sample chapters and ordering information for its own books. To promote interaction, subscribers are encouraged to submit articles (including images and video), download other people's articles, leave messages for colleagues, and join book-group discussions.

Firms on the Web

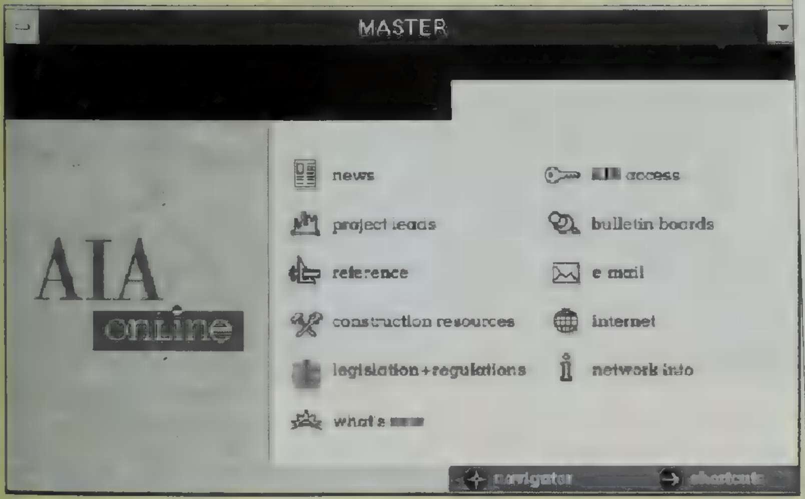
A popular and fast-growing trend is for architecture firms to produce their own Web sites. At this writing, over 200 firms are listed on the AIA's index (http://www.aia.org/archwww.htm). In many cases, their Web sites are the digital equivalent of their marketing brochures (previous pages). Although few architects expect to attract clients this way (few have), some feel that without a Web site their technical credibility would suffer.

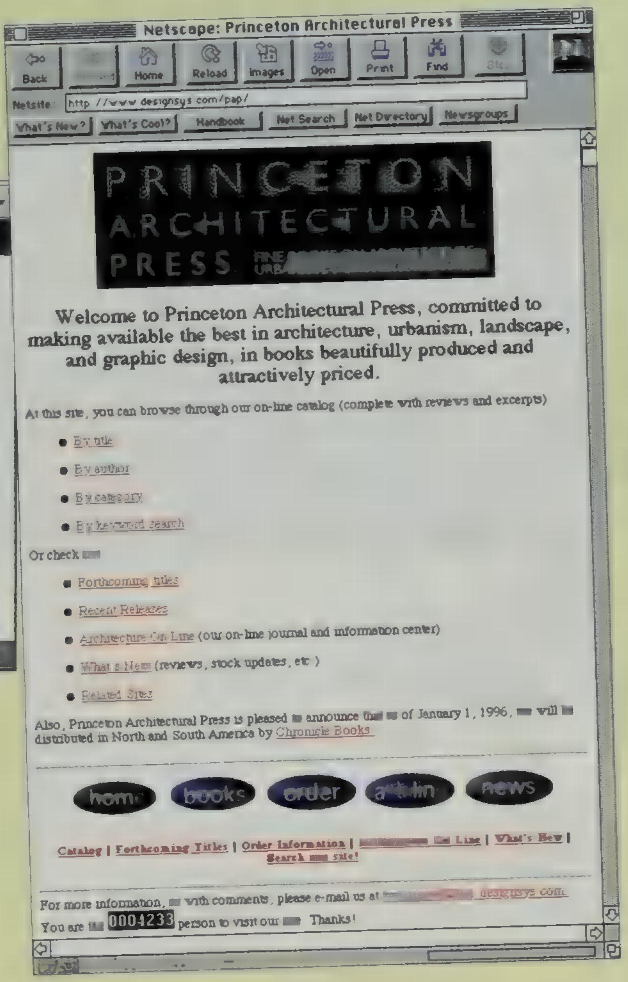
But there are other benefits. The sites can also serve as a centralized but private in-house resource for the firm's staff; prospective employees can be more selective in where they apply for work; and the firm provides a public service in educating visitors about architectural issues.

For these and other reasons, Zimmer Gunsul Frasca (ZGF) in Portland, Ore. has developed its own Web site (http://www.zgf.com/). In addition, says Ken Sanders, ZGF's associate partner and manager of information services, the firm is exploiting the medium to communicate with clients. ZGF is currently working on a new campus building for a college that is already wired into the Internet. By publishing schematic drawings on its Web site, the firm can get feedback from a wider spectrum of the building's future occupants than through conventional meetings.

"Because these users are already on the Internet," says Sanders, "this is an excellent way to distribute information about the design-in-progress." A service, he hastens to point out, that is not appropriate for every client. In design projects that are politically sensitive or private for any reason, it would be a mistake to publicize preliminary work.

Because the Internet was born in universities, that is where it is most deeply entrenched. Nearly every architecture school in the country now has a Web site. Some, such as the University of Washington (previous pages), have tried ways of using the on-line environment that professionals could learn from, such as enabling long-distance collaboration. As ZGF's Sanders concludes: "This is a brave new world, and we're learning as we go." ■





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Bentley Systems, Inc., uses its Web site for promoting a design competition (opposite left). Building-product manufacturer data is one of the most promising resources on the World Wide Web (opposite right). In the future, such Web sites could replace paper catalogs. Princeton Architectural Press links to its BBS (near left) as does AIA, which offers new graphics on members-only AIAOnline (far left).

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All in the Family

Two low-end programs with strong ties to high-end AutoCAD also need ties to other software for optimal use.

By Steven S. Ross

Our reviews this month highlight a trend in software. As core products have become increasingly complex, vendors are relying more on standard "helper" packages. Need a text editor inside CAD? You can use Microsoft Word instead of one provided as part of the CAD package. Need a database? Use Microsoft Access. Need a spreadsheet? Use Excel.

There are three problems here. First, the "add-on" is almost always a Microsoft product. When other products such as the Lotus 1-2-3 spreadsheet can be used, it is often at a loss in functionality. Second, the "optimal" add-on is almost always for Windows. Thrifty DOS is being left behind—perhaps deservedly so, because it is a technical dead-end. But so is Unix.

Third, it is tough to synchronize versions of all the software. The two programs reviewed this month both take advantage of links to Excel, for instance. Both can link to Excel 5.0, but are happier with Excel 7.0. Buy one program and you'll pay for upgrades.

The advantage is that the data formats themselves are more "standard" and once everything is running, the system is a joy to behold (and often a joy to use)—even if it takes three times as much hard-drive space on your computer! Just make sure you hire a good systems integration expert or have a good dealer to keep track of it all.

AutoCAD LT for Windows 95

Vendor: Autodesk, 111 McInnis Pky, San Rafael, CA 94903, 415/507-5000, 800/964-6432, 415/507-5100 (fax), CompuServe (Internet)GO ADESK, http://www.autodesk.com.

Equipment required: Windows 95, 16MB RAM, or Windows NT, 32MB. Files take 5MB of disk space; allow another 30MB or so beyond normal Windows swap file) for working files.

ost: Street price under $500; symbol braries $99 each; upgrade from older LT 2.0 for Windows 3.1 or 3.11), $129. (Call 800/435-771.) LT 2.0 street price has been cut to nder $300.

If you are easing into CAD, or need a low-cost way to add AutoCAD-compatible seats or work-at-home seats, AutoCAD LT's new Windows 95 version may be for you. It doesn't run most AutoCAD add-ons (symbol libraries are an exception). But old gripes about having to master the sometimes abstruse AutoCAD are now obsolete; interfaces for all AutoCAD versions have been improved substantially.

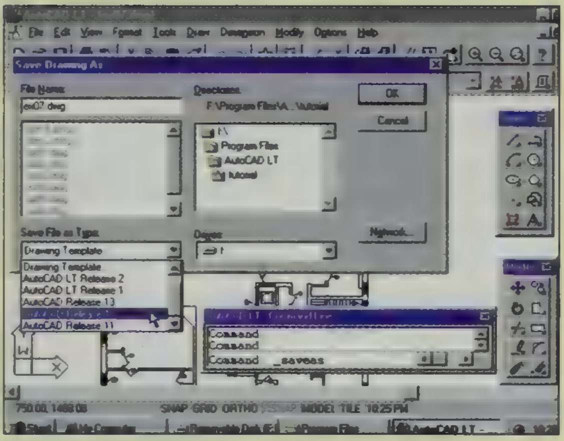
Compared to other lower-cost CAD software, LT is more compatible with AutoCAD 13 files and has a more AutoCAD-like command structure (the interface is similar to AutoCAD R13, and can be modified to act more like R12 or R11). On the other hand, LT soaks up more machine resources than most CAD software in its class. In fact, there is no Windows 3.1 or 3.11 version of this upgrade; it requires Windows 95 or NT. And LT is 2D-oriented while many competitive products are fully 3D. LT will display 3D objects originally created in AutoCAD 13 and allow you to edit them. But it cannot create them.

Also, unlike some competitors in the under-$1,000 market (but like full-blown AutoCAD), AutoCAD LT can open only one DWG file at a time. If you want to cut and paste among separate drawings, you have to open a second copy of LT (tricky if the drawing files are large or memory resources are anemic) or copy to the clipboard, close the source drawing, open the target drawing, and paste the clipboard's contents.

Indeed, the clipboard and OLE (Microsoft's Object Linking and Embedding) becomes particularly important in a package like LT, which doesn't have things like strong support for data built in. Generally, it all works well—you can link everything from bitmap images to spreadsheet tables. Likewise, LT drawings can be linked to other software such as Microsoft Word (that is, LT is an OLE server as well as a client).

There are some quirks, however. LT won't accept large documents all at once, for instance; it tends to stop after the first page (save as text instead, then import the text). LT has one neat feature that full-blown versions of AutoCAD itself don't have—a "property painter" that lets you pick up the formatting properties of an object—text, color, layer or linetype, for instance—and "paint" those properties onto other objects. It makes editing a breeze, even if the original was drawn in an illogical manner (with objects mixed on layers, for example) that defies easy grouping.

There are also many new productivity features compared to older versions of LT, including command interface, better text handling: (spell check; paragraphs-as-objects); vastly better dimensioning; ability to create complex line types that use symbols; MAPI (a mailing protocol) compliance (great for sending drawings over even a rudimentary office network); better TRIM, EXTEND.



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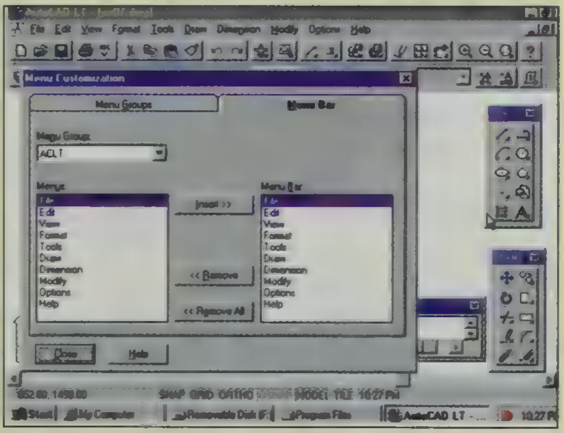
With AutoCAD LT, you can easily save R11 and R12 DWG formats with the command File Save As Menu. Note the floating command line window; it can be docked at the bottom of the screen.



By customizing the menus, you can make LT look more like other versions of AutoCAD. For clarity of reproduction we captured these screens at a low 640 by 480 pixel resolution.; you'd probably use a minimum of 1024 × 768 to get plenty of drawing space on screen.

An old LT annoyance for those who used—and tweaked—symbols is overcome as well: You can now explode blocks with different inserted X and Y scale factors.

The clever XREF overlay feature—it allows you to use the current drawing to cross-reference other sets of drawings—is also in LT now. It allows different sets of drawings for different discipline specialists within an office. The improvements are well worth the upgrade from older versions of LT if you have enough machine power to run at least Windows 95.

Manuals: One large paperback; good on-line help files.
Ease of use: There's now a wizard to help set up new drawings. We like the organization of commands on the restructured menu system, but they are not the same as AutoCAD 13. You'll be creating palletes and icon bars on both platforms to make them look more alike.
Error-trapping: Mainly oddities due to the evolution of AutoCAD 13 and LT along slightly different tracks. LT is fully compatible with AutoCAD 13 release c4; it will read earlier releases and convert them to c4 format. If you then read the file back to an earlier version, 13 won't read it properly. The problem arises because c4 and LT use an updated 3D (ACIS) modeling engine. To force LT to use the older ACIS entities, set the ACIS system variable to 1 in LT.
150 *on Reader Service Card*

Pro Builder 3D

Vendor: Softdesk, Inc., 7 Liberty Hill Rd., Henniker, NH 03242; 800/231-8574; http://www.softdesk.com. 9internet).

Hardware/software required: Windows 3.1, 3.11, 95 or NT; 16MB of RAM; 40MB of disk space (plus another 75MB to run multimedia tutorials); CD-ROM drive and sound card strongly recommended. Excel 5.0 or 7.0 spreadsheet needed for estimating.

Cost: $595 with modules for basic estimating, electrical, plumbing, hvac, kitchen and bath. Framing is an extra $249. Includes 30 days free telephone support (measured as days after first call). Free CD with tutorials available by calling 800/231-8574.

Looking for a way to interact with clients, especially in those first few meetings, and bounce around design ideas in a way they can more clearly understand? Pro Builder 3D may be for you—although it was meant for builders who want to act like architects.

It has three basic modules—a footprint editor for outlining one floor at a time (or the roof) in plan; a modeler that automatically turns your footprints into a 3D wireframe model (you then apply color and surface treatments for realism); a drafter that allows you to add detail (it works with add-on modules to produce construction drawings).

Pro Builder 3D has a lot of polish—and well it should. The underlying drafting engine is Drafix, the first Windows-based CAD program (Softdesk bought the developer, Foresight). Other products in the line, aimed at amateurs, sell on the street for as little as $40. Pro is in the middle—far more advanced in its features than the amateur toys, but not quite full-blown CAD.

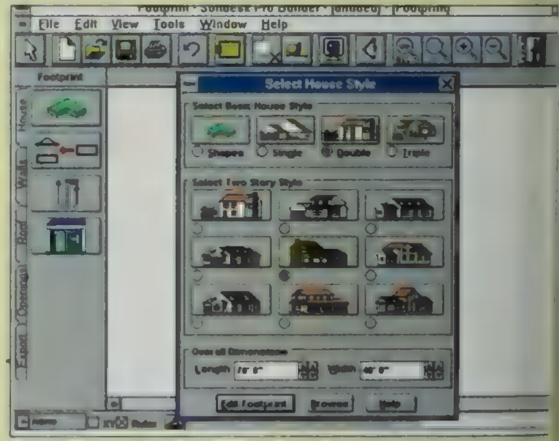
Advanced? It reads and writes AutoCAD DWG files as well as DXF. Softdesk, the largest developer of add-on software for AutoCAD itself, wrote its own translators. You may have to tweak the system to get them to work right. We had trouble in a Windows 3.1 system with 16MB of RAM, but we were using more than 1MB for the software needed to capture screen images for publication. It converts wireframes into simply shaded solids—no photo-realism (although you can import photos as bitmaps), but the results are easily good enough to give clients a sense of what the design is all about.

The estimating module is awesome (you can produce a true bill of materials on it), but you must run it with Excel. The framing module was not ready at press time; its function is to draw studding and other framing elements the way they are built out in the field, by combining 2 by 4s or 2 by 6s with stock doors, windows and so forth.

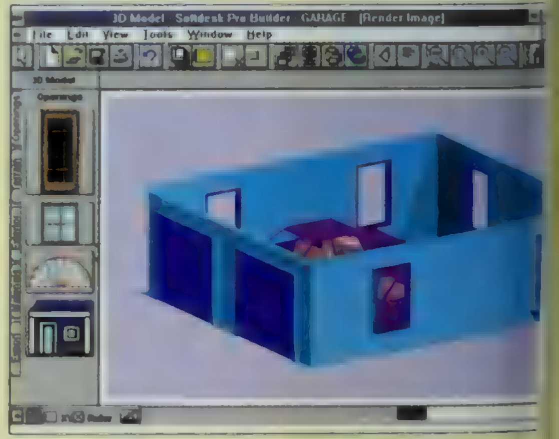
There's a paucity of stair designs and roof types, and you can't directly model a curved wall, for instance. Improvements are promised for the end of 1996.

For those preliminary meetings, however, this is already a fine visualization tool; the only thing like it so far has been Virtus Walkthrough and perhaps the old Alias Upfront or Facade. But none of these packages are as capable of producing the detailed designs that Pro Builder can. And, for small offices doing "brick and stick," Pro Builder can be the main CAD engine.

Manual: Sketchy 46-page pamphlet with great on-line help and two hours of terrific CD-ROM-based tutorials.
Ease-of-use: Not as intuitive as you might think. Practice for a day or two before performing in front of a prospective client. The program is an incredible memory hog; we like it a lot less in 16-bit versions of Windows (3.1 and 3.11) than in Windows 95 or NT.
Error-trapping: Good. It is easy to force re-renderings, and they are fast.
151 *on Reader Service Card*



Pro Builder 3D lets you select a design styl or create your own custom style.



A garage project after rendering.

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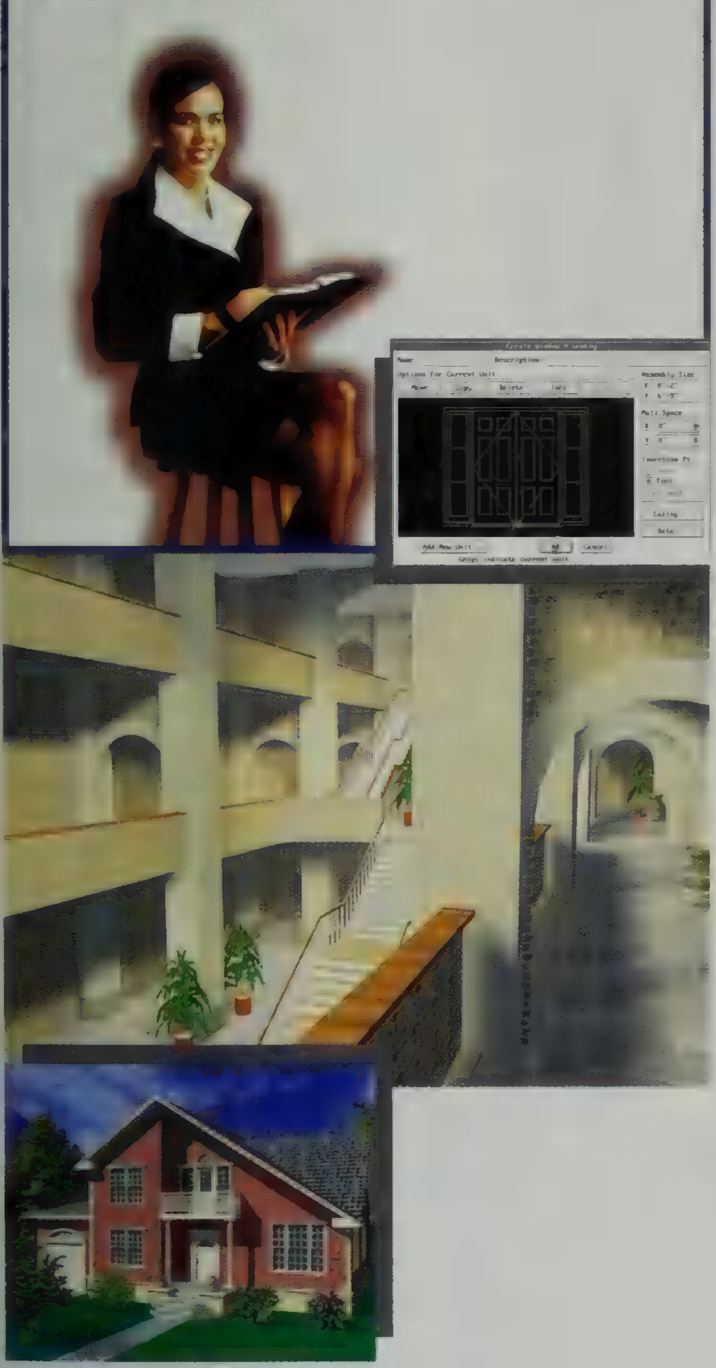

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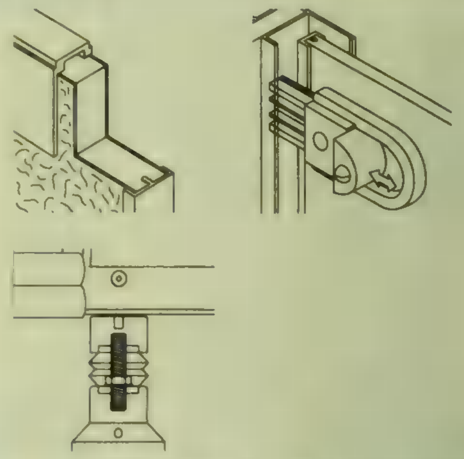
Washroom Compartments

ADA accessibility provisions in effect since 1992 continue to be a major force in the design and manufacture of toilet compartments. Refitting public facilities to meet the needs of users in wheelchairs and others with limited mobility has pushed development of partition materials and installation hardware that better meet accessible-space and operating criteria, such as self-closing doors and one-handed, easy-grip locks. But partition manufacturers feel that many architects lack a clear sense of what meets ADA regulations, and that designers don't always know what will work within a given space.

Beyond accessibility, other trends include the increased demand for "modesty" partitions—those with overlaps that prevent observers from peering between door and wall into the occupied toilet stall. Reasons behind "no sight lines" include theft deterrence (a crook can't scope out the "best" time to snatch a purse); cultural or religious preference for ultra-privacy in locations such as a Malaysian shopping mall or a girls' yeshiva in Brooklyn; and, in casinos, to provide a totally private space for gamblers to count their winnings. The costs associated with maintenance—especially the partitions' ability to deter or hide graffiti or make its removal easy—is also a big factor in specifications, and is driving the use of more durable, higher-priced components. J.F.B.

152. Vandal-resistant panel surface
Textured fiberglass-reinforced plastic surfaces can withstand heavy abuse: an inner-city high school replaced painted-metal stalls with Thrislington compartments, despite the increased cost, for the material's superior scratch- and graffiti-resistance. Panels have an extruded-aluminum frame based on a single-piece headrail; floor supports adjust to level, provide gravity door closing, and anchor panels and doors. Slide lock has "in-use" graphic. 800/553-1600. Bobrick Washroom Equipment, N. Hollywood, Calif.

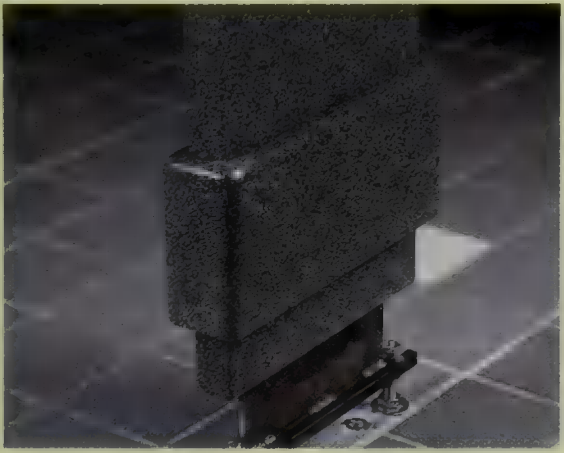


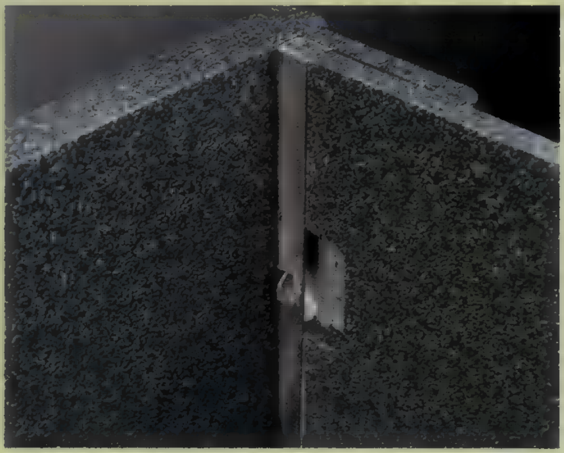
153. Solid-polymer partitions
Made of compression-molded high-density polypropelene, Poly-Pro partitions can be specified in four mounting configurations, three hinging options (continuous, wrap-around, and integral), and a range of standard as well as custom colors. The installation pictured, a "Ladies" at the Arrowhead Pond hockey rink for Anaheim's Mighty Ducks, has compartments in a custom Linen color selected to blend with other interior materials. Solid HDPE is especially suited for heavy-use, damp environments; the material is non-absorbent with a slippery surface feel that resists marking by pens and pencils. Doors and walls are individual pieces and one-inch thick, with a give that seems to make them practically "unbreakable." 410/740-[illegible] Capitol Partitions, Inc., Columbia, Md.

Partition manufacturers are offering new hardware and material options for compartments that conform to American with Disabilities Act accessibility guidelines.

154. Solid-surface partition system

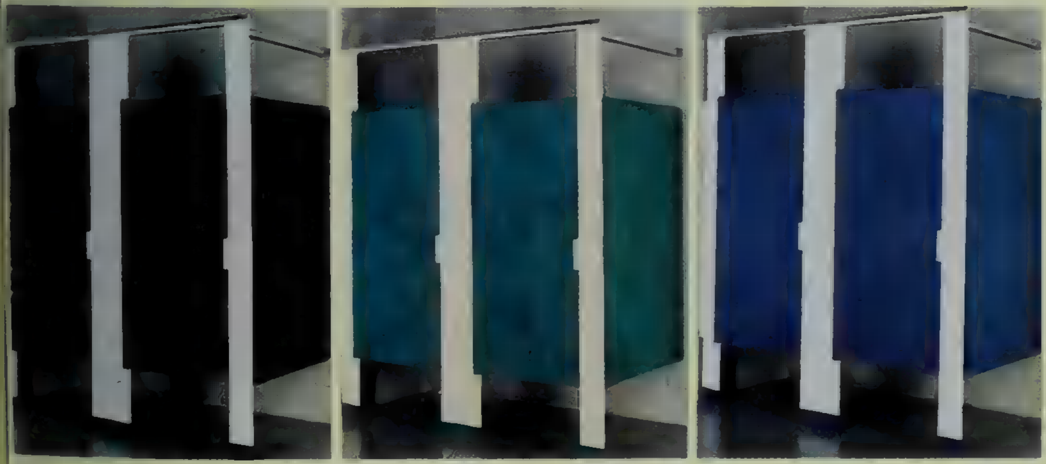
Corian acrylic, developed for use as a surface material, needs to be reinforced at load-bearing points when used as a structural element in large, unsupported sheets, such as a partition or dressing-cubicle system. A major Corian fabrication firm, ShowerShapes worked with DuPont in developing an unobtrusive reinforcement technique that produces a sleek compartment with no visible hardware (right). Compartments are manufactured to order, incorporating factory-nstalled hardware and pilasters reinforced with a 6-in.-wide steel plate. Mounting base top right) can be adjusted to conform to uneven floors, and has a Corian cover that slides down to conceal the fitting. Edges of divider panels and doors are reinforced to carry integral stainless-steel mounting brackets and hinges. ADA-required grab bars need to be indicated on supplied drawngs, as divider-mounted bars require a reinforced panel. Fire-rated Class 1, the 1/2-n.-thick Corian sheets are non-porous, and will not allow graffiti markings to penetrate. Scratches are removed by light abrasives. 800/316-4989. ShowerShapes, Goleta, Calif.





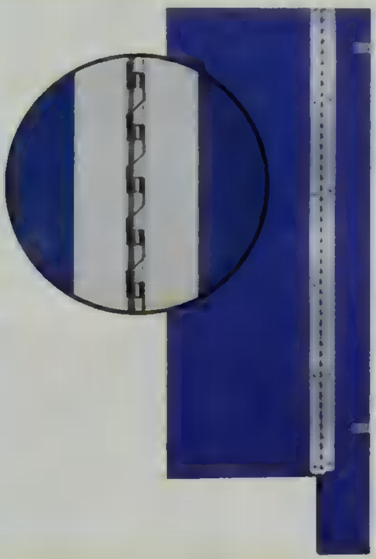
155. Integral-color plastic panels

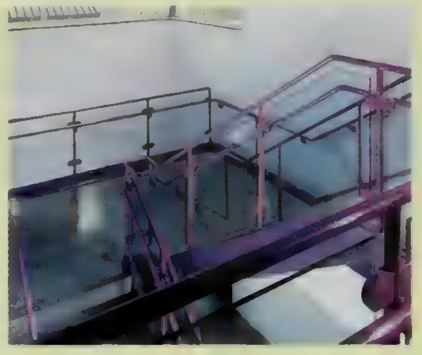
The makers of Santana partitions, the original compression-molded HDPE cubicle, say hat their plastic material is "hard enough to be durable, and soft enough not to break." Developed as a low-maintenance, cost-effective panel for restroom partitions and shower talls in very-heavy-traffic areas such as staiums, factories, and institutions, the Santana ystem now offers several appearance and unctional refinements. The PolyBlend option three possibilities, below) lets the designer elect different solid-tone or stone-look colors for the doors, panels, and pilasters of a single installation. The hinge pin is concealed within the inch-thick panel, and off-set from the strike to eliminate sightlines. The surface has a slickness that repels most graffiti implements; if the panels are eventually gouged (as with a screwdriver) the polymer can be "burnished" with a metal tool to restore the surface. Special 3/4-in. screws are used to fasten grab bars and other acces-sories onto the side walls of compartments without penetrating the panel. 800/368-5002. Santana Products, Inc., Scranton, Pa.



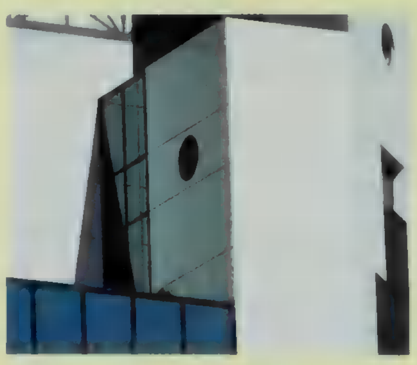
156. Self-closing stainless-steel hinge

Metpar manufactures toilet and changing enclosures in a range of materials, including stainless steel; enameled metal; a wood core faced with decorative high-pressure laminate; and solid phenolic for high-moisture environments. A new full-length hinge, made of stainless steel, gives all partition doors an ADA-compliant self-closing feature. The multi-cam hinge also permits emergency access and eliminates hinge damage from deliberate over-swinging of the door. 516/333-2600. Metpar Corp., Westbury, N.Y. ■





157. No-paint railing
The NT Normbau nylon-over-steel rail adds bright color and an abstract design element to educational settings, such as the Hawthorne Child Center by RAW Architects, left. Said to have superior UV-resistance, the 1/4-in.-thick integrally colored nylon surface meets fire codes; the rail itself is easily mounted on standard building substrates. 800/452-7925. W&W Sales Ltd., Nanuet, NY.

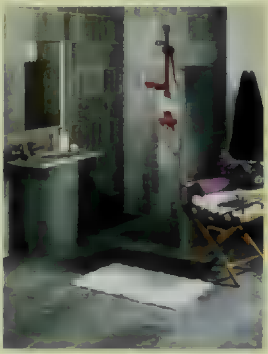


158. Coil-coated cladding
Marketed under license, the Mirawall process produces solid-aluminum sheet with a powder-coat architectural finish said to equal the performance of coatings applied after fabrication. Lower in cost than ACM panels, the continuous-coil-coated sheets are described as perfectly flat, and meet the stringent European "Qualicoat" weathering tests—even in blue. Otefal Sud, Grassobbio, Italy.

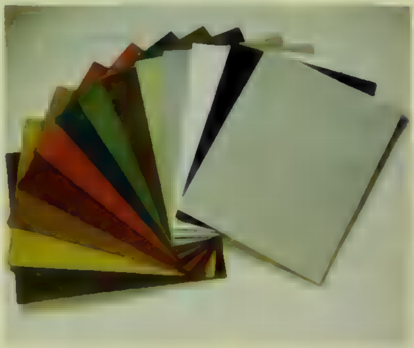
159. Prefabricated steel domes
A self-supporting hemisphere of Galvalume or painted-steel sections, domes come in diameters from 10 to 30 ft; special sizes to order. Each wedge-shaped piece has roll-formed edges that interlock with the next and are bolted. Originally silo tops, domes can be used on facilities such as child-care centers (left), offices, and homes. 519/884-2980. Demuth Steel Products, Waterloo, Ont.

160. Rock (maple) of Ages
As his first institutional commission, Dakota Jackson designed three chair configurations—a 1,000-unit order—for the just-opened San Francisco Public Library. Built to "last forever" using robotically cut "warped" laminated Tupelo and maple, seating is clean, simple, and cost effective—and really very comfortable, say users. 718/786-8600. Dakota Jackson, Inc., Long Island City, N.Y.

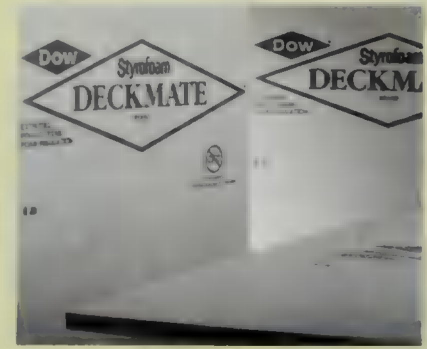
161. Hurricane-resistant glass
A glazing option that meets the large-missile impact and pressure-cycling test required by high-wind codes consists of a single light of standard annealed or heat-strengthened glass laminated with DuPont's SentryGlas composite. Shown here on an airport car-rental facility, the glazing also protects against smash-and-grab damage. 800/533-2080. Viracon, Owatonna, Minn.



162. Finnish soapstone tiles
Offered in two colors—a dove gray with white veining, and a higher-priced serpentine (green with white), soapstone is dense, non-porous, immune to acid and alkali attack, and silky and "warm" to the touch. As a floor, tiles are relatively slip-resistant, even when wet. Available in a range of sizes and gauges, honed or plain. 800/843-3473. Tulikivi U.S., Inc., Charlottesville, Va.



163. For roofs in a view
Normally white, off-white, or gray, Sarnafil's single-ply thermoplastic roofing membrane can be custom-colored for projects as small as 5,000 sq ft. The roof can complement materials used in the building exterior, and colors can create patterns or designs visible from higher floors of adjacent buildings or airplane flight paths. 800/451-2504. Sarnafil, Inc., Canton, Mass.



164. Rated polystyrene
New configurations of Styrofoam insulation, Deckmate and Deckmate Plus are said to be the first extruded polystyrene products that meet UL requirements for direct application on metal decks. They don't need an extra thermal barrier, such as gypsum board, saving material cost and installation time; recyclable. 800/441-4369. The Dow Chemical Co. Midland, Mich. ■

Short takes

Sustainable forest management. The Rainforest Alliance's Smart Wood program, said to be the largest sustainable forestry certification program in existence, has expanded its monitoring brief to encourage and reward the reuse of old wood. The nonprofit conservation group will award its seal of approval to wood products that have been reclaimed or salvaged from acceptable sources. Lists of approved sources of both fresh-cut and old wood can be accessed on-line under "Resources" at www.rainforest-alliance.org/swr.htm. Or fax requests to 212/677-2187.

Recent combinations.
◆ Smith Steelite and the H.H. Robertson unit of United Dominion Industries, both based in Pittsburgh, have agreed to combine their architectural and industrial construction-products businesses on a 50-50 basis. If finalized, the merged firm would be the largest U.S. manufacturer of metal wall and roof systems.
◆ Schuller Corporation, Denver (formerly Manville), has signed an agreement to acquire NRG Barriers, a leading maker of ISO [polyisocyanurate] foam roofing insulation headquartered in Portland, Maine.
◆ The owners of Cornelius Architectural Products, Pittsburgh, have acquired Forms+Surfaces, Carpinteria, Calif. Founded in 1964 as a singl source for a broad portfolio of high-design architectural products, Forms+Surfaces will continue to provide doors and wall surfaces, hardware, and site furniture. ■

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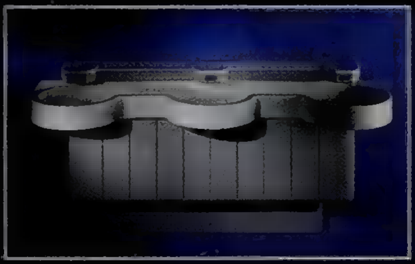

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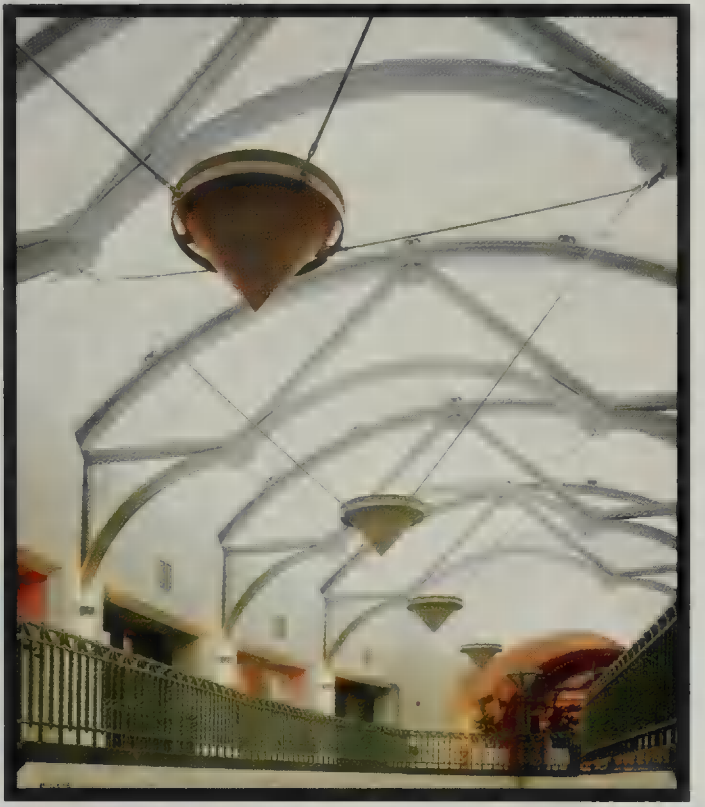

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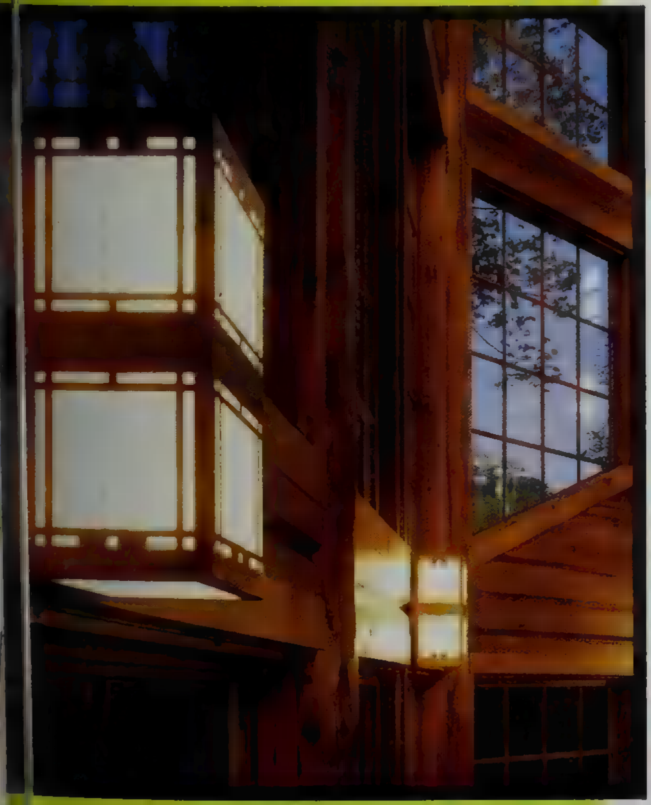

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ARCHITECTURAL RECORD 7/1996

Building Types Study 739/Academic Buildings

Campus construction, currently at some $3 billion per year, will soon be fueled by new demographic forces driving a change in direction and a growth in volume. Many current trends will continue; others will not.

Competition for enrollments has prompted administrators into luring students with new athletic, cultural, and social-gathering facilities placed in highly visible locations. The shoe is beginning to shift to the other foot, however, as candidates' numbers swell and admissions become more difficult. According to the U.S. Department of Education, 18-to-24-year-olds in universities, now above 8 million (compared to below 7 million in the mid-'80s), are expected to exceed 10 million by 2006—not including a growing contingent of 25-to-40-year-olds and part-timers. Higher-learning institutions must soon hustle to provide basic classrooms, labs, and electronic communications. Architects may well want to bless the busy children of the Baby Boom.

This month's Building Types Study (pages 66-99) focuses on several forces that will remain constant. Campus planning will continue as a driving force, as older colleges and universities, such as Stanford (pages 66-71) struggle to mend the ravages of scatter-dash outward growth from orderly quadrangular layouts. Campuses developed later, such as the University of Cincinnati (pages 86-91), search for an identity among thoughtlessly sprinkled buildings erected in a potpourri of mismatched styles. Included in these campus restructurings are new types of campus buildings that acknowledge changing uses. Harvard recently took this course by creating a computer-friendly student center (pages 94-99), complete with fast food, that offers a needed study alternative to a formal library setting. And architects will find even more work in basic classroom facilities.
Charles K. Hoyt

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his issue contains the fourth installment of the
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ıe Pacific Rim Section series (pages
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arning Objectives

fter reading the NTT and Suzhou
oject articles and completing the
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Identify the expressive design ele-
ents that resulted directly from site,
gulatory, or community conditions and
plain the reasons for each.
Describe two or more technical inno-
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Cite two benefits to facility occupants
sulting from the design decisions.

anufacturers' Squrces
ted on page 157

Stanford Recaptures Lost Grandeur

Current planners, designers, and architects rebuild a romantic legacy to get ready for the next hundred years. They're capturing the spirit of the original buildings, which had been badly remodeled, and marrying current design concepts with tradition.

"The Stanford Campus was one of the great inventions in the history of American schools, but nobody followed it once it had been laid down." That rueful statement by architect James Freed sums up the situation in which not only Stanford, but many American colleges now find themselves.

American universities were once like mammoth engines fueling American culture. That was where values and character were defined. The built forms used in that formation represented the most thorough realization of a utopian impulse at the heart of our society. As models for perfecting that vision, Frederick Law Olmsted laid out rough-hewn monasteries for founder Leland Stanford in what he saw as a grand, almost Eden-like landscape. Yet over the years those ideals disappeared as this university, like most others, turned into a factory of learning controlled by fighting academic camps.

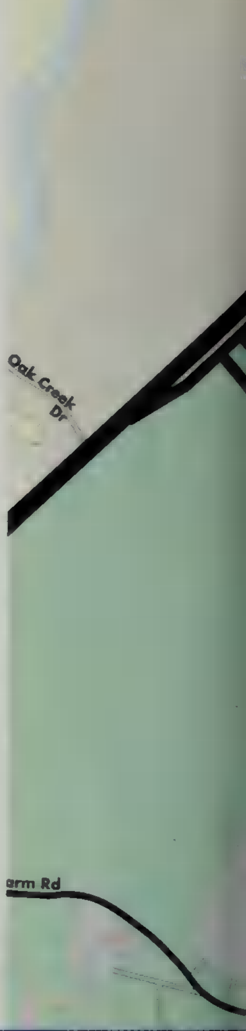
Now that many of the land-grant colleges and the great universities founded by "robber barons"— from Leland Stanford (1885) to William Marsh Rice (1891)—reach their centennials, they need not only extension, but massive renovation. This scenario is giving these oases of higher learning a chance to reassess their campuses. Yale is spending hundreds of millions of dollars renovating its facilities, Columbia is building large new structures, state colleges from Illinois to California are engaged in large building projects, and Stanford is recreating the grandeur it had lost.

Three events have given Stanford the chance to reinvent itself. The most important of these was the 1989 Loma Prieta earthquake, which caused massive damage to the Stanford campus, especially to the original Romanesque arcade buildings designed by Shepley, Rutan & Coolidge as part of Frederick Law Olmsted's master plan. The Federal Emergency Management Agency (FEMA) provided $40-worth of assistance, but the total cost of renovation was $160 million, which Stanford raised from private sources. This let the university almost completely rebuild the original campus and, in the process, not only make the structures safer, but also bring them back to their original glory. One of the campus architects' most important decisions was to use the buildings as much as possible for their original purposes. Thus the "Language Corner" is now the site of several Humanities Department offices and classrooms.

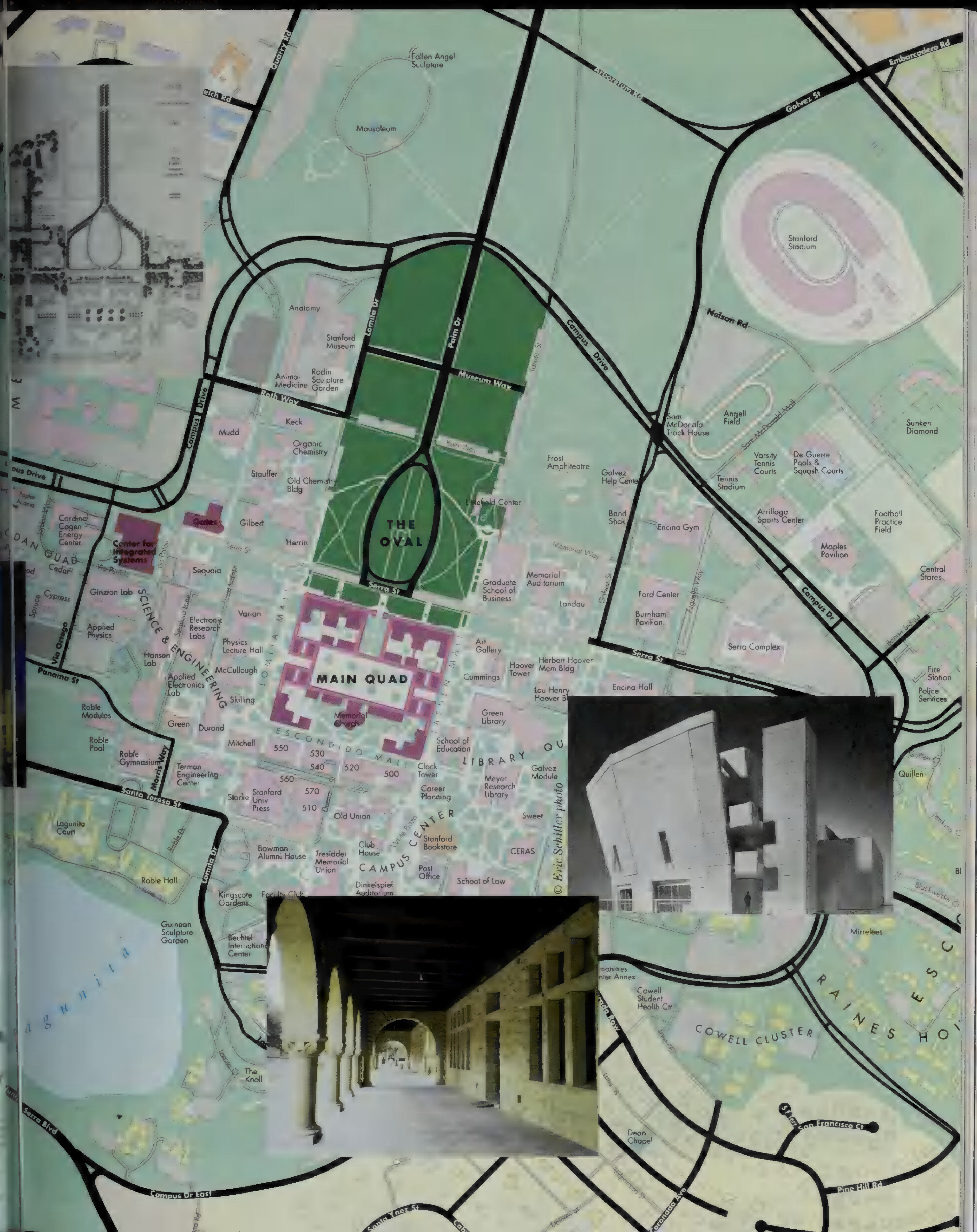
The second and third events were less monumental, but equally significant: the erection of the Littlefield Business School in 1988 on the until-then sacrosanct "oval" that forms the forecourt to the campus (center of site plan opposite) and the arrival of a new Campus Architect, David Neuman, in 1989. If the former event made people aware

Continues on page 68

A new landscape plan (opposite page, top) reinforces the tight-knit campus center that Fredrick Olmsted created in 1885. From it, Stanford had sprawled outward in an increasingly piecemeal fashion (large plan). New buildings (below) near the center (bottom) now bow to the original design language and quadrangle layout, while buildings farther away (far right) more freely adapt those values.



Peter Aaron ©Esto Photographics photo



© Eric Schiller photo

Continued from page 66

of the disastrous course in which the campus was heading, the latter pointed the way towards a remedy. Neuman had made a name for himself at the University of California at Irvine by hiring architects such as Frank Gehry, James Stirling, and Charles Moore, but what he cared about most was the overall setting that would knit together their individual designs.

Neuman is a strong believer in two principles: buildings must be strong enough to hold a space and create recognizable landmarks, and the fact that "landscape is maybe more important than buildings." First, Neuman put a large sketch of the campus above his desk. It emphasized the strong, symmetrical cross axes dominating its lay-out. He then set about bringing order back to a campus overrun by pell-mell construction. Neuman persuaded the university to spend $4 million ("almost all of it invisible") to replant and repave Palm Drive, the traditional major approach to the campus. He replanned the medical campus with view corridors and plantings, and is now implementing a plan to turn Serra Drive, the major campus cross-axis, into a landscaped mall.

The design of sites for future buildings will respect the old patterns, but take fresh approaches. "We didn't want to replicate the original quads," says landscape architect Laurie Olin about one example of his work at Stanford for Neuman, his design for the Science and Engineering Quadrangle, (page 70). "That would have detracted from its power." At the same time, Olin felt the need to extend the basic formal idea that Olmsted had decreed for the campus while meshing it with the "tartan of pedestrians and bicycles" that had over the years spread out over the campus.

Olin, Neuman, and architect James Freed of Pei Cobb Freed Partners in New York, saw the new construction as an opportunity to reassert

Continues on page 71

The need for seismic strengthening and repairs gave Stanford the opportunity to restore the original campus buildings

From the outside, the structural and functional restorations Norman Pfeiffer of Hardy Holzman Pfeiffer Associates oversaw on the original Inner and Outer Quadrangles are a textbook example of the Secretary of the Interior's Standards for Historic Preservation. Walking through the arcades or through the Memorial Church, you have no idea that there have been major changes in the more than a century since their construction. The problem, says Pfeiffer half in jest, "is that it looks as if we didn't do anything. All those hundreds of man-hours, and you don't see any of it."

Where the public can't see it, there is massive new construction. Pre-cast, steel-reinforced columns hold up new concrete floors, paint and stucco hide the reinforcements, and new electrical wires snake through walls that seem impenetrable. "It's like reweaving a basket," says Pfeiffer. Some of the changes are more visible. Shotcrete replaces some of the original plaster, and the light fixtures are squeaky-clean replicas of an original the architects found in storage.

On the insides of the buildings, where previous renovations had divided the 17-foot-high spaces into warrens of offices, the new work merely cleans up and orders these accretions into a serviceable environment. The overall effect, though, is one of clarity, grandeur, and a sense of rightness. "We didn't invent a new architecture," says Pfeiffer. "We just took a position on every single item in the renovation separately."

A large part of current efforts is to redesign the cross malls (left) to bring them back to Frederick Olmsted's intended formality.

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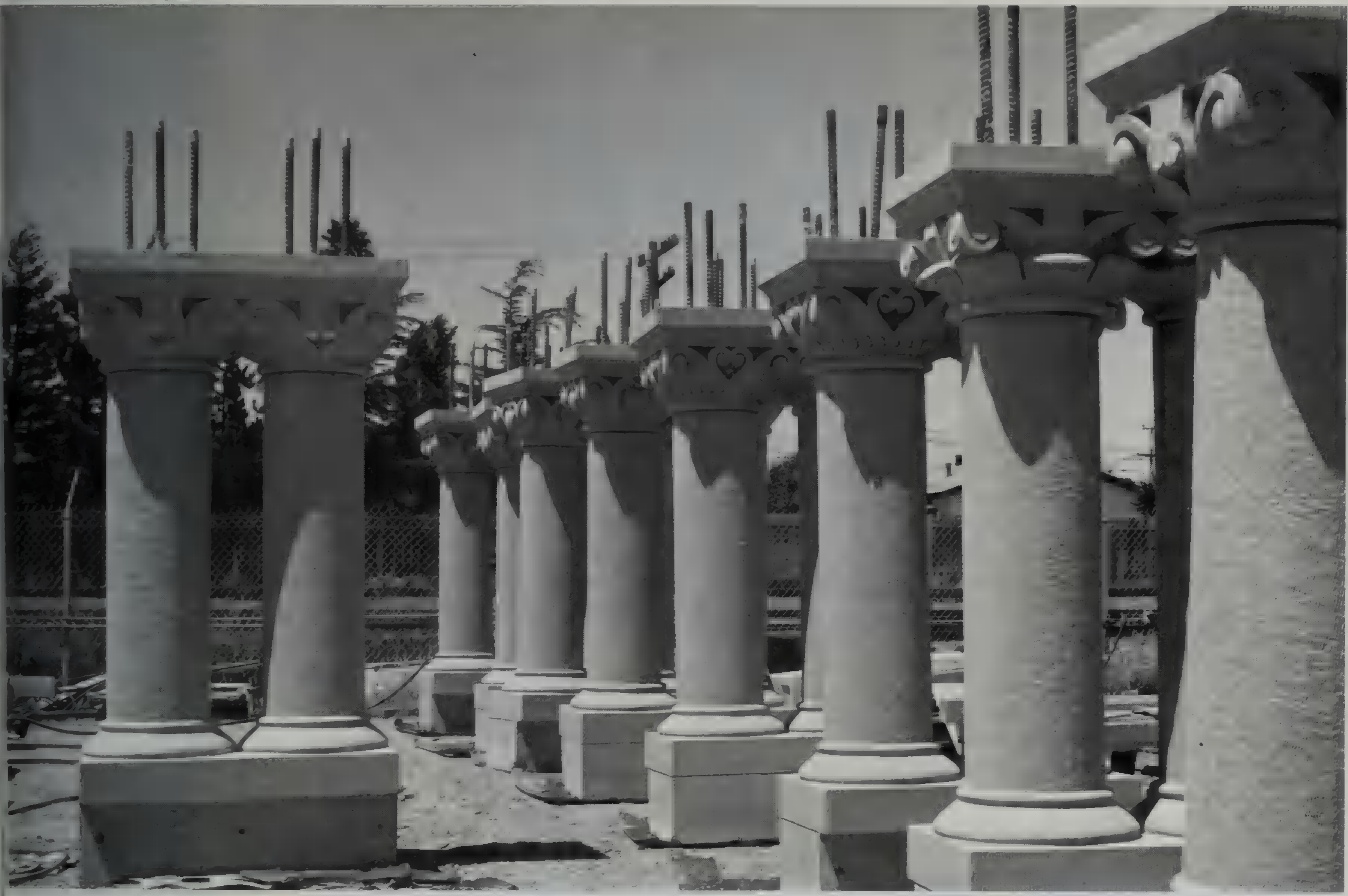

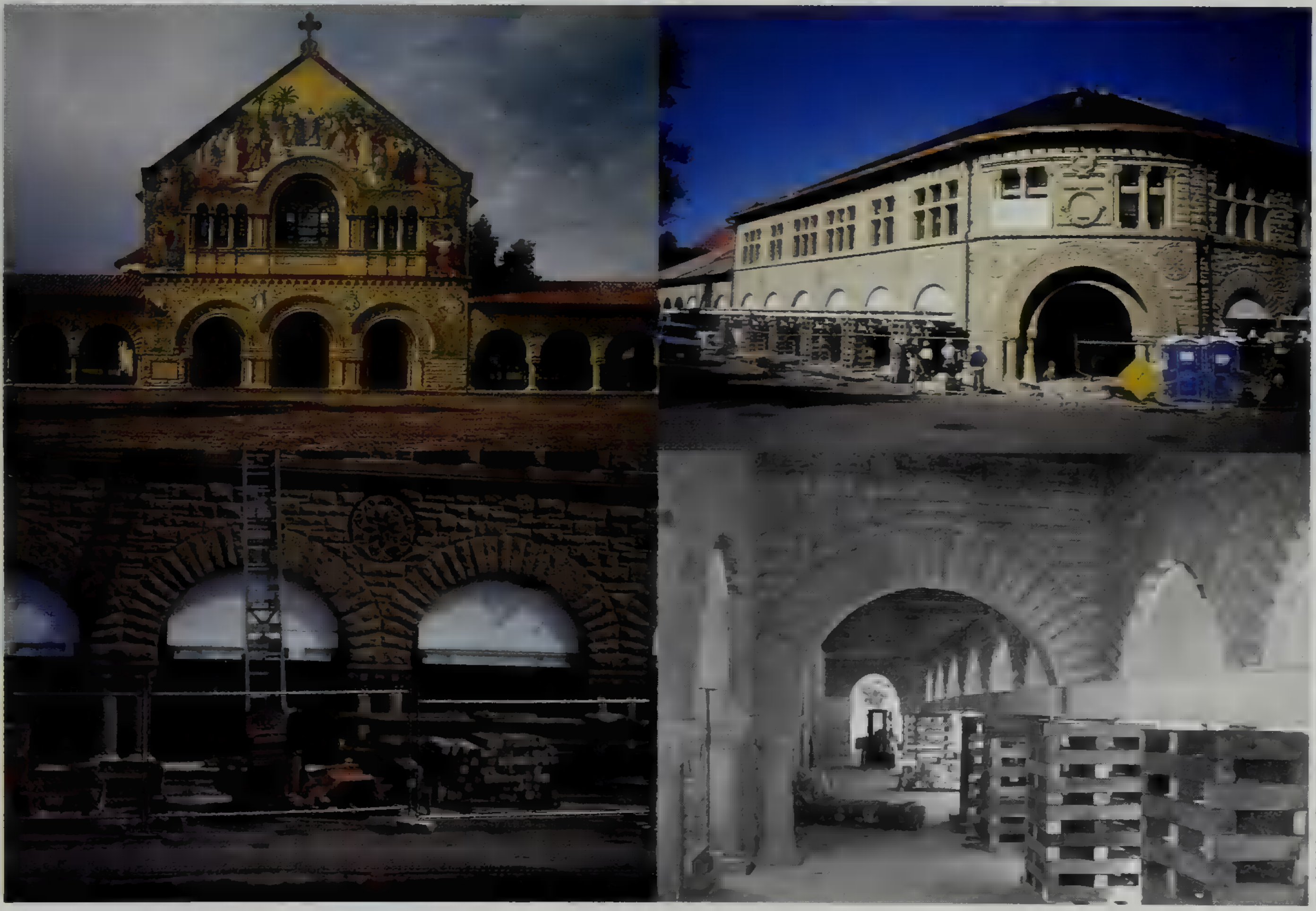

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*ardy Holzman Pfeiffer
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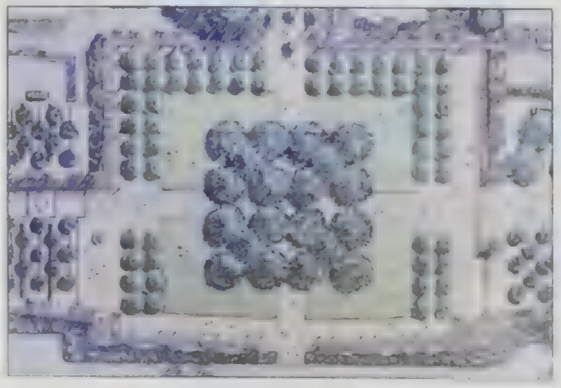
James Freed brings Olmsted into the 20th Century with his Science and Engineering Quadrangle

"Our first task was to establish where you are and where you are going," says architect James Inigo Freed of his design for the Science and Engineering Quadrangle. This complex of four new buildings ties together various classroom and office buildings to create a coherent home for the sciences at Stanford, but it also points the way towards the future reorganization and extension of the campus. If the new courtyard (below) establishes a sense of place, then the curved arcade at the west end of the quadrangle points the way (in a perhaps overly assertive manner) to the rest of the campus, which is currently expanding into a medical campus to the north and into the fields to the south.

The design of the buildings similarly reinforces and elaborates on existing conditions. The McCullough Materials Laboratory Annex and the Statistics Department Building are closest to the campus core. Their design tries to adapt the bearing-wall and gable-roof construction you find there to a modern idiom. The roofs "appear to float," says Freed, over stone-veneer walls. The Electrical Engineering Department Building and the Regional Teaching Facility then start to break open and abstract these forms into larger, geometric masses and expressive curves. The rectangular forms ("best for seismic strength," Freed points out) devolve into curves and angles that gesture towards the newer part of the campus. This rotation responds both to a more confused context, says Freed, and to the fan shapes of the lecture halls these structures house.



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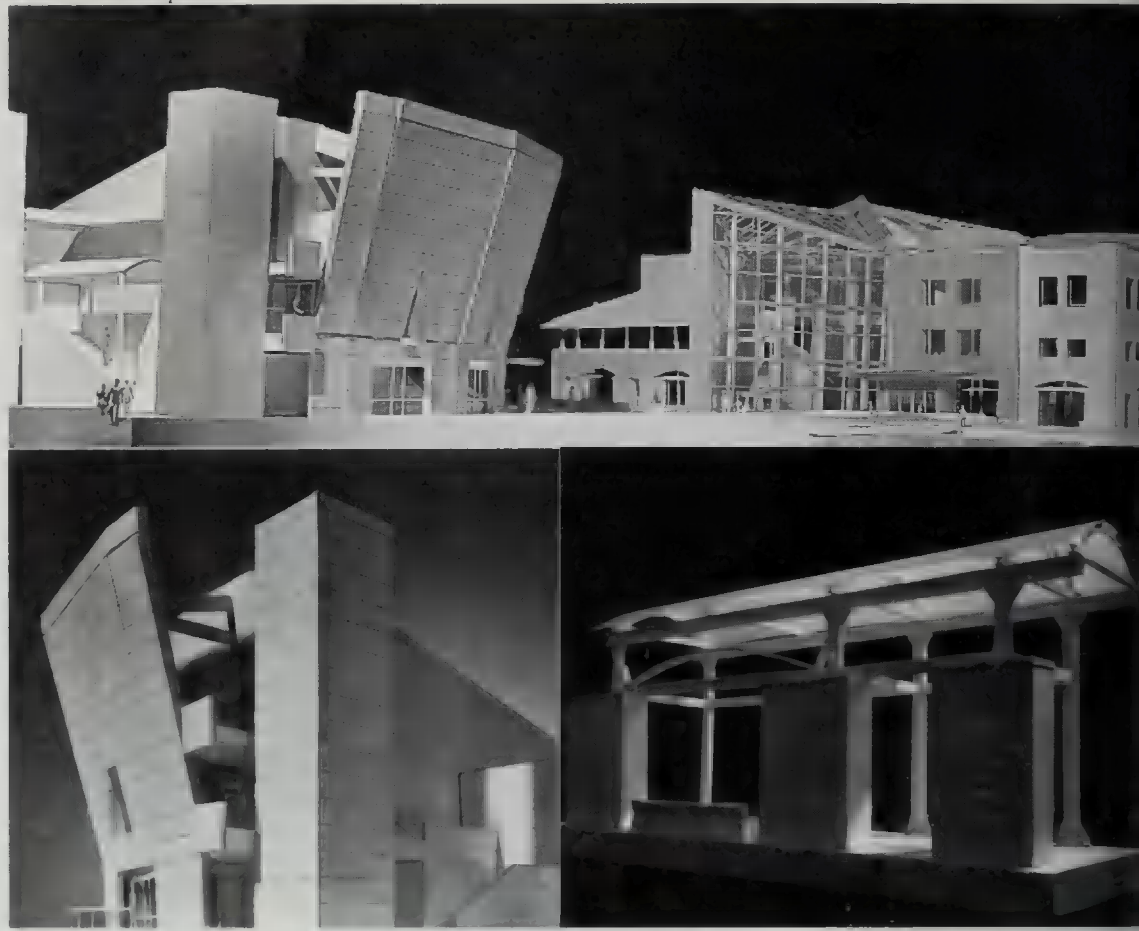
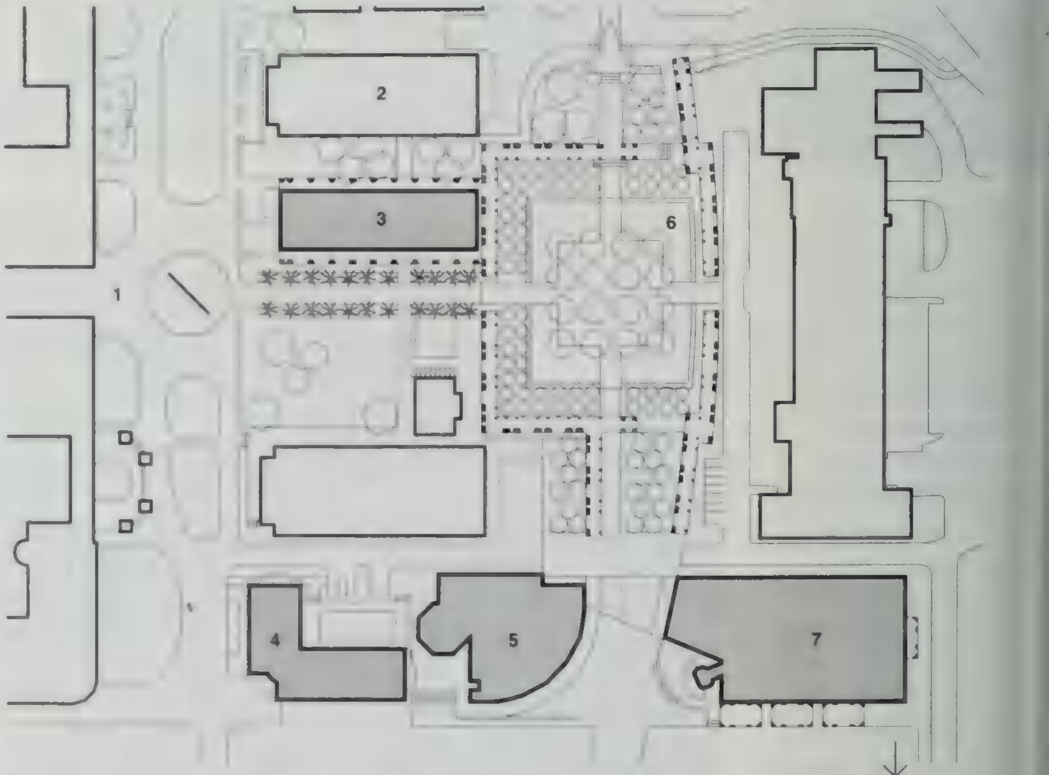




SCIENCE AND ENGINEERING QUADRANGLE SITE PLAN

The new Science and Engineering Quadrangle is an example of the more contemporary treatments intended by landscape architect Laurie Olin for areas away from the traditional campus center. Still, it retains a formal character that ties it back to the older campus.

1. *Link to main quad*
2. *Materials Science Building*
3. *Materials Science Annex*
4. *Statistics*
5. *Teaching*
6. *New qua*
7. *Electrica Engineeri*

ontinued from page 68

ie original order. Freed planned the buildings around an arcaded urtyard, which Olin then ordered into what he calls "an outdoor ing room with a taut surface." A slightly "cupped" grass plane lds loungers or participants in Stanford's frequent outdoor class- om sessions, while Italian stone pines rising out of beds of gravel ovide shade.

he whole design has a monumental appearance that continues what eed calls "the more French and formal, rather than English" nature the campus. His choice of the pines extends the "Mediterranean cabulary" of the campus, says Olin, while the incense cedars and ive trees he wants to plant in groves to the north and south of the ain courtyard recall the campus's "agricultural roots as an experi- ental ranch." Looking not just to the rolling hills and mountains at inspired Olmsted, but also to the agricultural wealth that under- s the carpet of technology now covering Silicon Valley, Olin agines an "order that could extend off indefinitely," serving to tie e campus to its physical and symbolic roots.

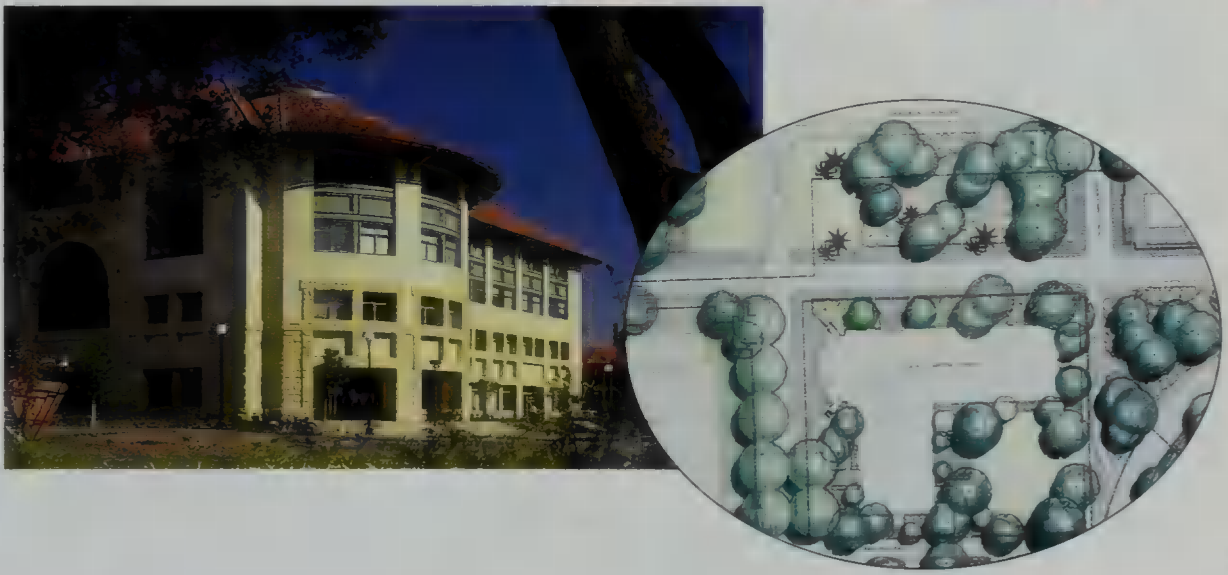
at Irvine, Neuman hired famous architects. James Freed, Henry bb, Sir Norman Foster, Ricardo Legoretta, Robert A.M. Stern, and toine Predock have all done or are doing buildings for the campus. e point is not to make signature buildings, but to hire good archi- ts who can, he says "extend the vocabulary of the campus" in a oughtful manner. By making strong buildings rather than back- ound objects that become a bland watering-down of the original (as hn Carl Warnecke did on this campus for many years), and then rking with the architects to use these designs to focus specific eas of the campus around nodes or groupings of buildings with a ordinated purpose as well as appearance, Neuman hopes to recre- the sense of the campus as a place of clarity, collegiality, and an nost didactic sense of rightness. *Aaron Betsky*

Robert Stern gave the Gates Computer Sciences Building an appearance closer to 19th-century intentions

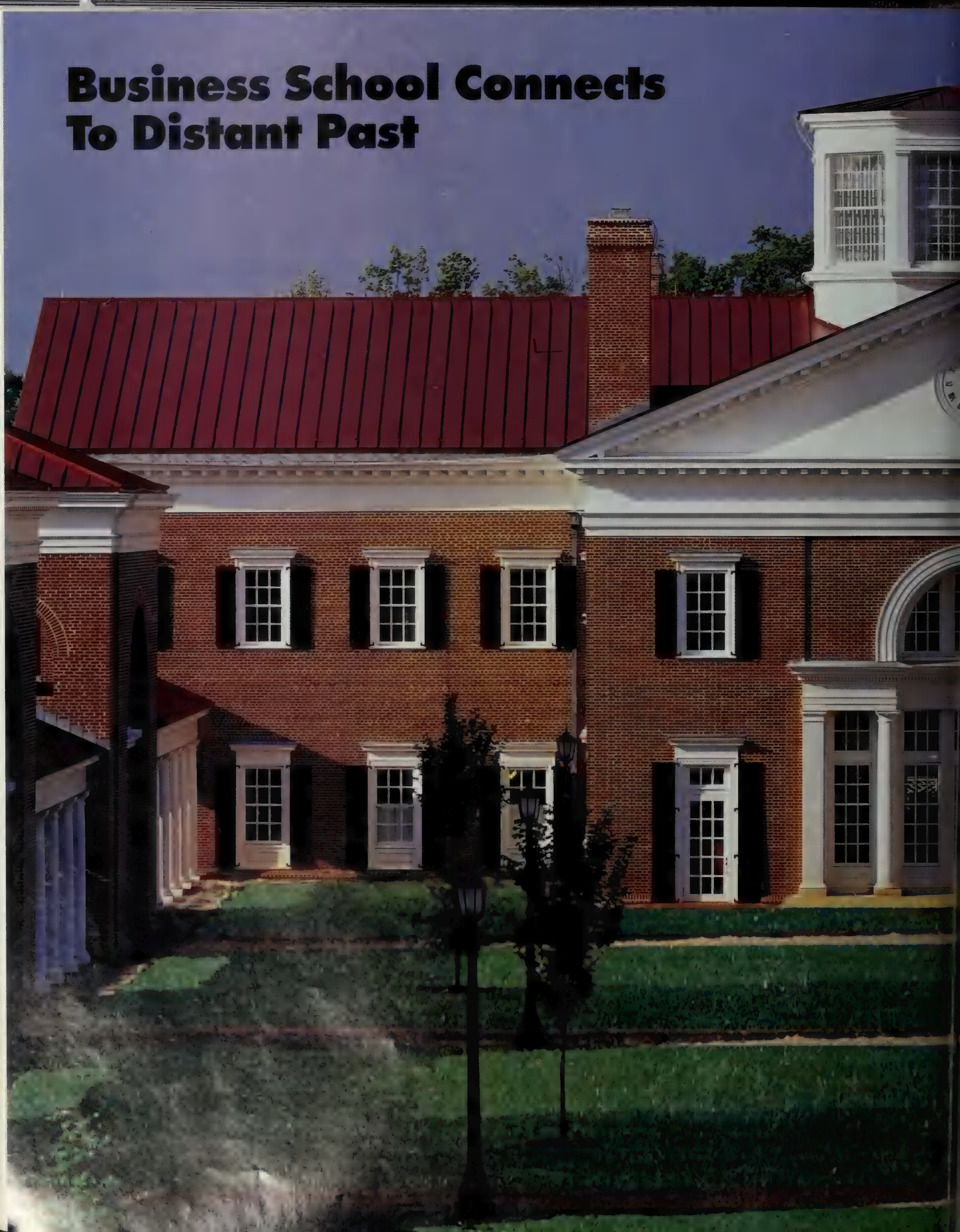
The office of Robert A.M. Stern is extremely proficient in producing buildings that recompose the basic elements of a historic vocabulary, and the Gates Building bears this out. Working, like original campus architects Shepley, Rutan & Coolidge, in an extension of his house style, and drawing on historic examples that existed in climates similar to those of Northern California, Stern has clothed Stanford's computer department in a Richardsonian Romanesque garb.

He then updated the forms into the industrial—if not the computer—age by such devices as using green-painted I-beams in place of wood rafters and window mullions. The L-shaped, $12.3-million building contains a 48,000-square-foot program within its seemingly deep walls, and this density of uses shows. Inside, there is little relief from the low-ceilinged, cellular nature of the design, though the library provides light and views over the campus.

Peter Aaron © Esto Photographics photos

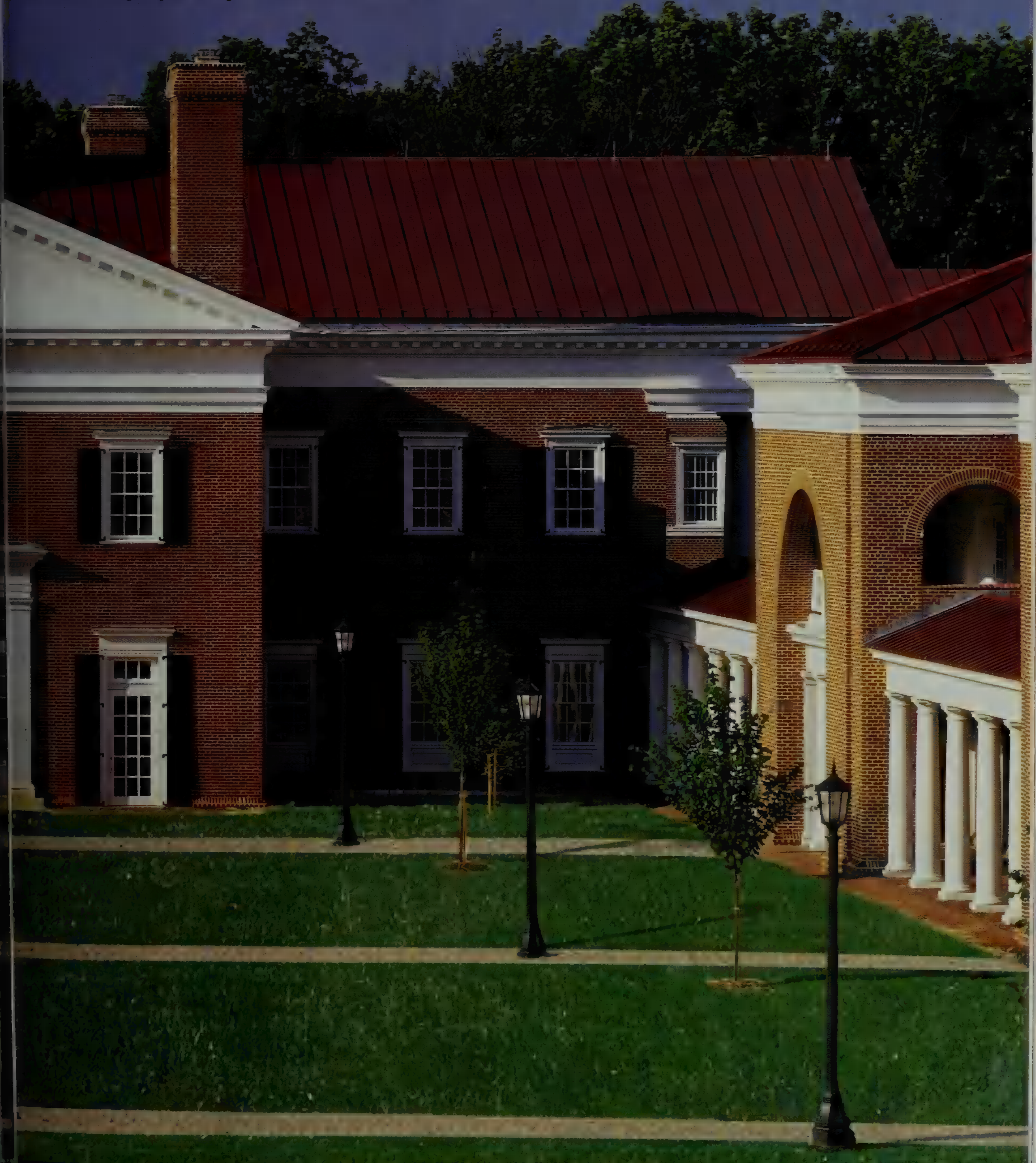


Business School Connects To Distant Past



Robert A.M. Stern Architects brings Thomas Jefferson's ideals to the University of Virginia's North Grounds.

Colgate Darden Graduate School of
Business Administration
University of Virginia, Charlottesville, Virginia
Robert A.M. Stern Architects, Architect
Ayers Saint Gross, Architect of Record



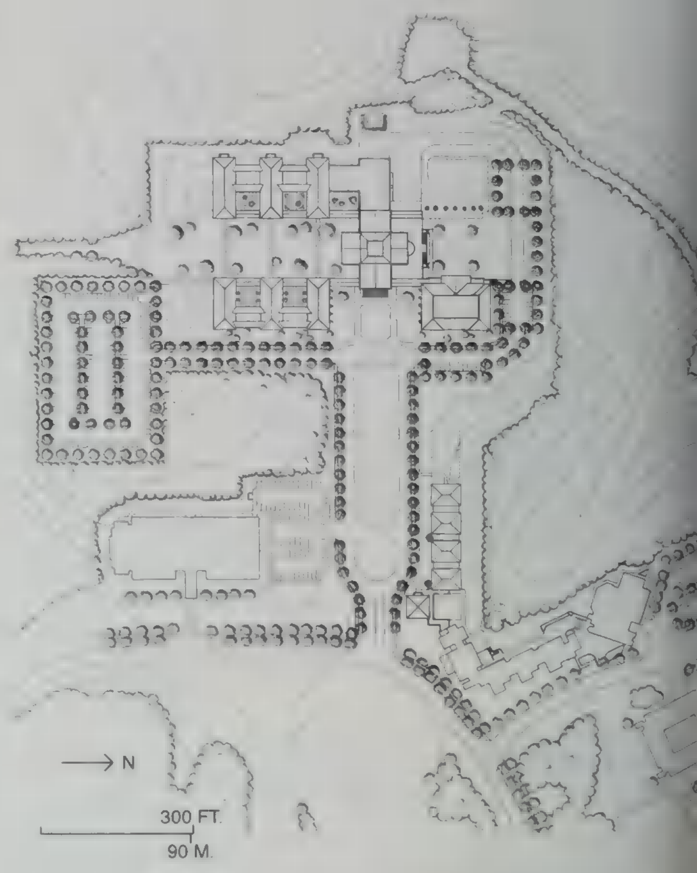
Prosperity is an appropriate image for a business school, and the new Colgate Darden School of Business Administration at the University of Virginia exudes that and more. While the 1990s have been typecast as less showy than the '80s, there's no false modesty in the school's new public image or in Robert A.M. Stern Architects' interpretation of the university's holiest of holies, the "academical village" of its founder, Thomas Jefferson, still a revered figure in Charlottesville.

Having outgrown previous North Grounds accommodations in a 1970s Hugh Stubbins structure, the Darden School, in an institution-wide rendition of teaching by the case method, sold its dilapidated, outmoded building to its neighbor, the law school, for $6.5 million, setting its sights on a nearby 20-acre parcel, for which it obtained a long-term lease. The balance of the 220,000-square-foot complex's $25.5-million construction budget came not from the state, but from private sources, and as Elaine Ruggieri, Darden's public relations director, points out, Stern's scheme of interconnected classroom, common, and library buildings interspersed with semi-enclosed gardens provides a welcome variety of "donor opportunities." More importantly, it complies with the University's Board of Visitors' 1991 mission statement regarding new architecture, which directs, in part, the restoration of "the Founder's vision of the reciprocity between the academic and the physical plan of the University." Or, as Robert Stern puts it, "a break with the recent [architectural] past to make connections with the distant past."

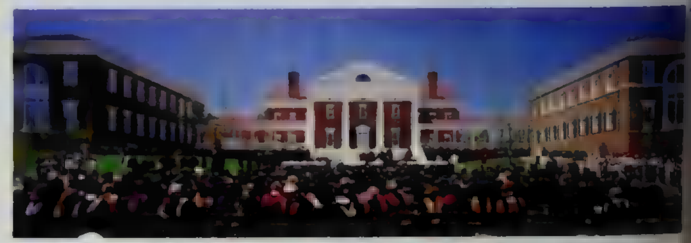
By relocating near its previous home, the school was able to retain use of accommodations for its profitable executive-education training program—bland Modern brick boxes that flank the eastern edge of the new enclave. A new Sponsors Hall marks entry to the Stern campus, acting as a gatehouse both between old and new and the transition between the profit- and education-minded aspects of the school. The Commons Building, with its grand reception rooms, commands center stage at the top of the hill, flanked by a library on one side and academic offices on the other. The office building and its twin, the classroom building, outline a grassy quadrangle that opens to a hilly, southern view (previous pages and opposite top).

While the grouping of brick structures around grassy plains is the most obvious reference to Jefferson, other invocations are more subtle. Combing three different types of brick work—the more intricate Flemish bond at prominent junctures, common bond at secondary places, and running bond everywhere else—the architects were not only able to meet a modest $128 per square foot budget, but were also able to echo Jefferson, who, project architect Gary Brewer says, employed similar cost-savings technique in his buildings.

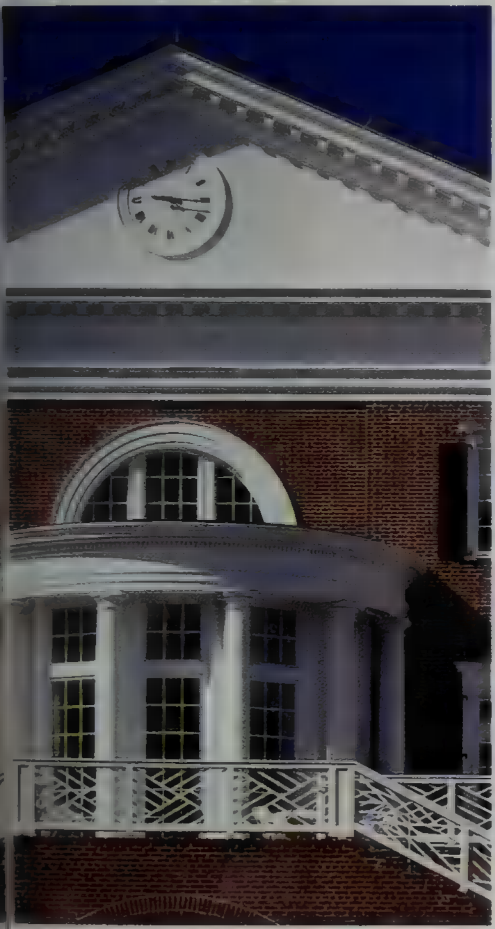
Authenticity to the Jeffersonian ideal, however, was mediated by the demands of new uses and construction techniques, proof that Stern's success in mining historical styles is based partly on scholarship, partly on invention. "When you are doing Neo-Classical work [these days] you are really relying on your subcontractors," explains Brewer. Though Jefferson's columns are plaster-coated brick, Stern's colonnades at Darden are [illegible], turned-concrete forms. Many of the brass light fixtures were custom-designed since historically appropriate fixtures, according to the architects, don't exist. That a complex modeled on Jefferson, whose presence often overshadows any architect on campus, would prove controversial among the forward-looking members of the local architectural community doesn't surprise Stern. "I [illegible] that architecture evolves," he says. "I just don't feel that the University of Virginia has to evolve at the same rate." *Karen D. Stein*



1. *Existing dorm*
2. *Sponsors Hall*
3. *New dorm*
4. *Commons*
5. *Library*
6. *Faculty*
7. *Classrooms*
8. *Future auditorium*
9. *Future addition*



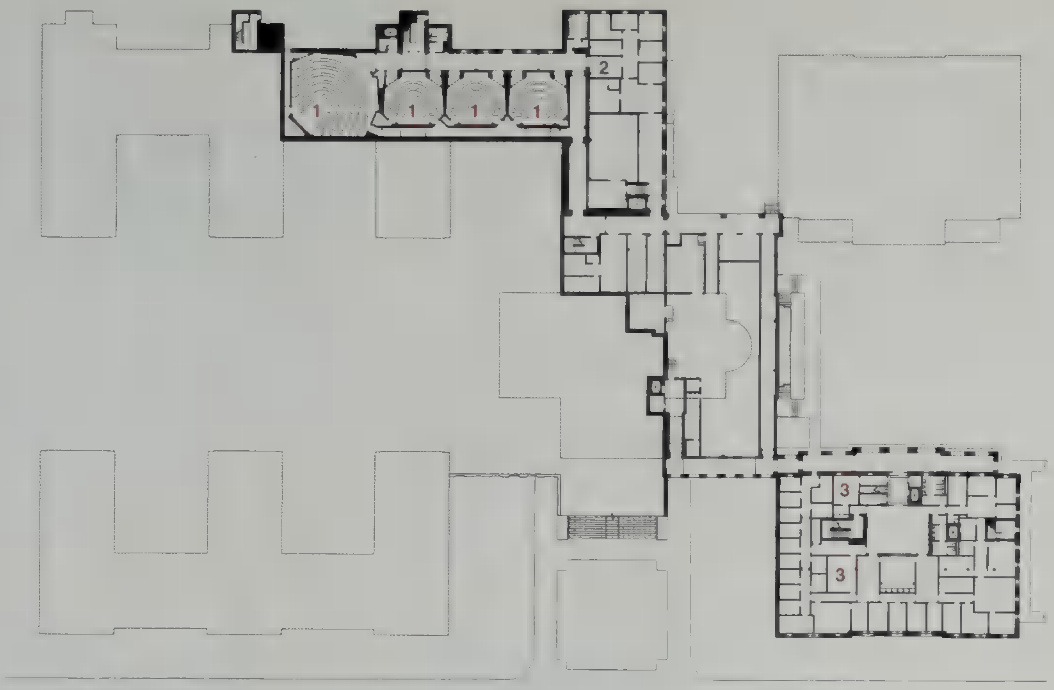
The front lawn of the Commons building, which is flanked by the library on the right and offices on the left, is full on graduation day (above). The south lawn (opposite top) joins offices and classrooms, interconnected by colonnades.



*obert A.M. Stern Architects'
itial scheme for the new
mpus, a submission to an
vited competition among three
ms that also included
ıllman McKinnell and Wood,
d Allan Greenberg, showed a
fferent arrangement of parts,
mely the integration of class-
oms and academic offices into
single volume located in the
rthwest quadrant.*

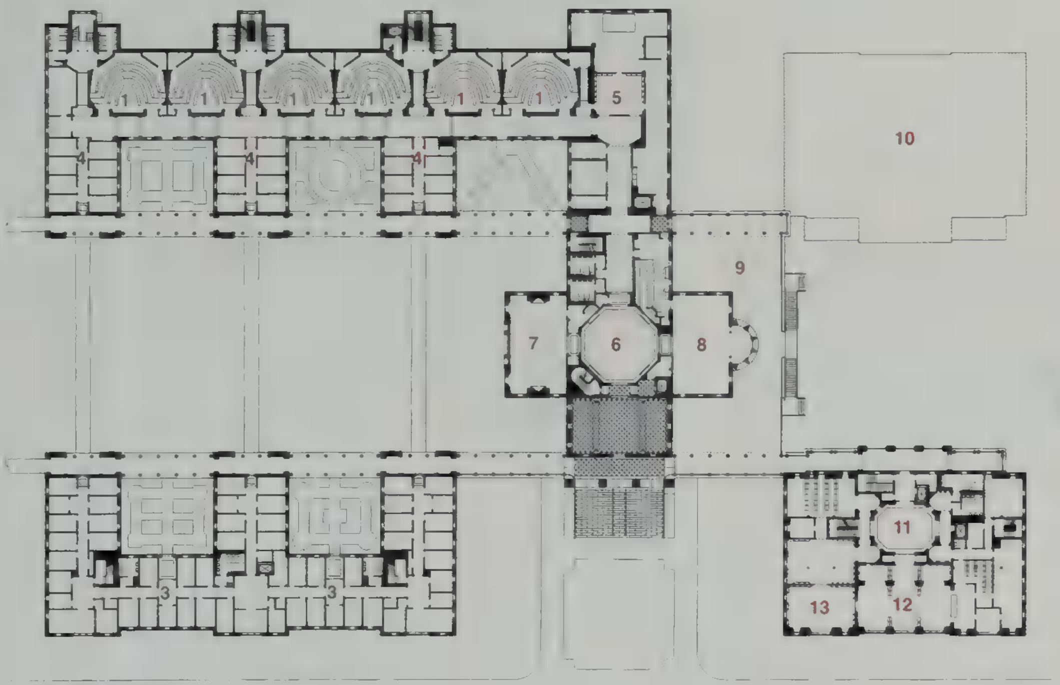
*hile Stern's team was selected
cause it had a "track record in
ing Classical architecture,"
ports Neil (Pete) Borden,
airman of the building com-
ittee, modifications to its plan
d building massing were the
sult of discussion with Darden
icials. Part of the university's
aduate-school-focused North
ounds, the Darden School was
andated both by the universi-
s Board of Overseers and the
rden Foundation, which paid
the project, to endorse the
dscape and architectural
inciples of the Jefferson core of
undergraduate campus. Says
rden of the particularly pow-
ul influence of the Darden
stees—many university grad-
es—on a project that they, not
state, paid for: "Stern's
ign gave them a lot of remi-
cence of their lives on the
m."*

*e tree-lined approach to the
nmons building culminates
"the forum," a top-lit
unda, where students and
ulty converge for a daily
rning ritual of coffee and con-
sation (following pages).
iacent are lounges and a cafe-
a (left).*



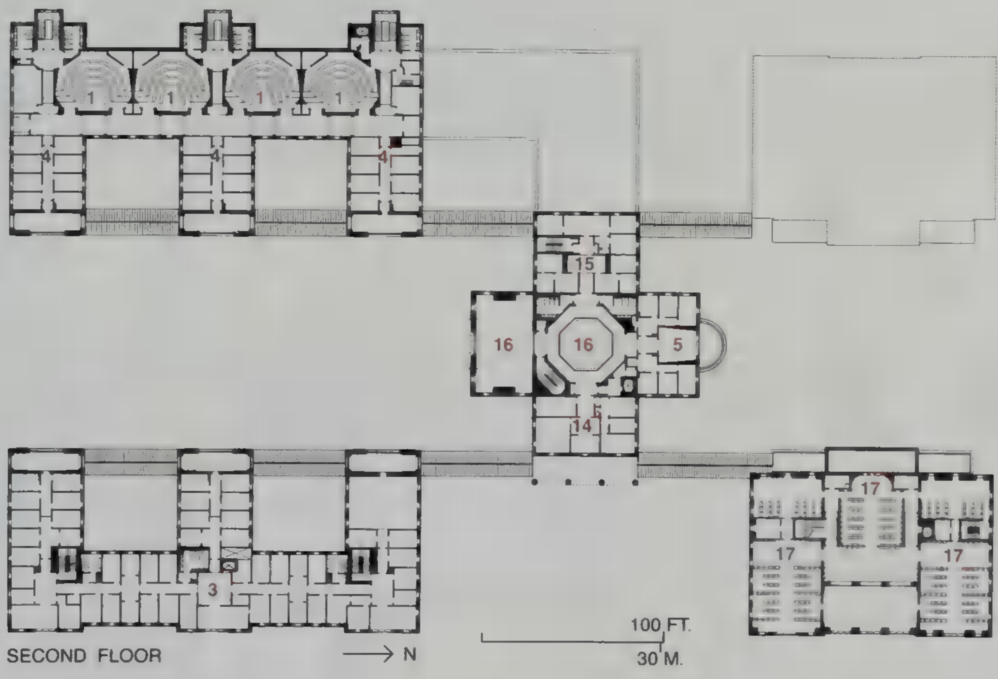
GROUND FLOOR

1. Classroom
2. Computer
3. Faculty offices
4. Group study



FIRST FLOOR

5. Student mail
6. Commons
7. Lounge
8. Dining
9. Terrace
10. Future auditorium/ dining room
11. Library entry
12. Reference
13. Reading



SECOND FLOOR

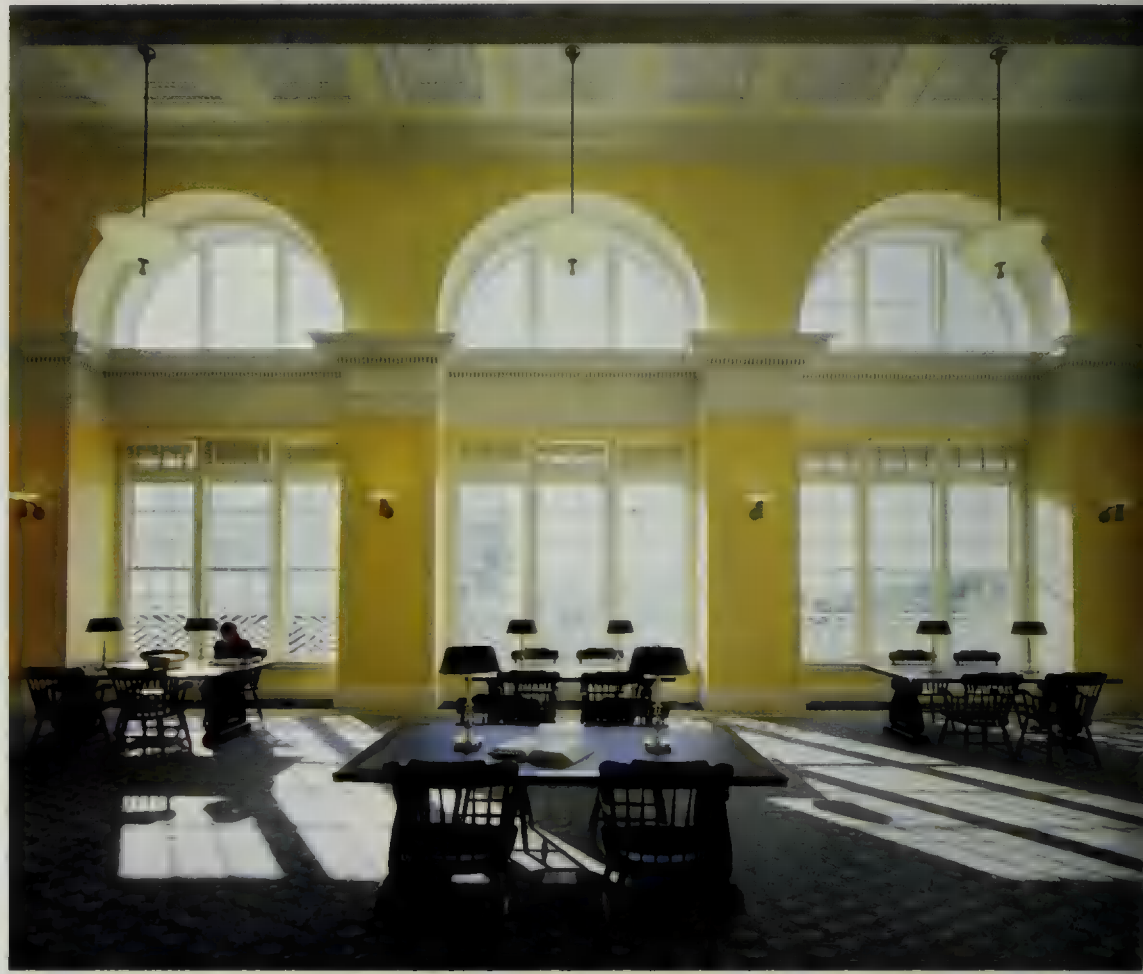
14. Dean
15. Staff offices
16. Open to below
17. Library stacks

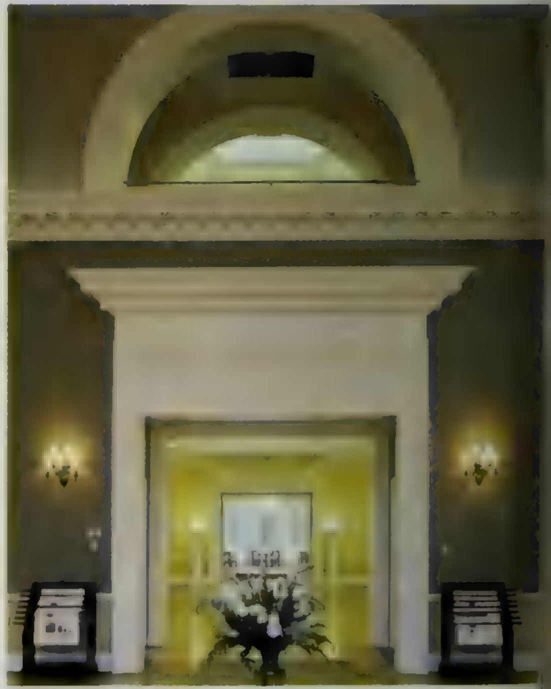
Up Close

Challenges: Create a new home for the Colgate Darden School of Business at the University of Virginia, founded in 1955, that captures the Thomas Jefferson image. Maintain ties to existing facilities for the school's extensive executive-education program. Plan for long-term development of a 20-acre site.

Program: The first phase, now complete, comprises 220,000 square feet. The centerpiece of the project is the Commons Building, which contains reception rooms and student/faculty lounges. Adjacent are a 20,000-square-foot library, a wing of 72 faculty offices, and a classroom wing of 16 classrooms for 60 to 120 students interspersed with 46 study-group rooms. Future phases include a 400-seat dining facility and a 600-seat auditorium to the northwest of the Commons Building, named Saunders Hall.

Solution: A Sponsors Hall Executive Residence, with 60 additional guest suites, acts as a transition between new and old. The heart of the school commands the hilltop, echoing Jefferson's "academical village."





Credits

Colgate Darden Graduate School of Business Administration

University of Virginia, Charlottesville, Virginia

Architect: *Robert A.M. Stern Architects—[illegible] Wyatt, partner-in-charge; Gary [illegible] project architect; Adam Anuskiewicz, [illegible] Augusta Barone, Bob Epley, [illegible] Michael Granville, Victor [illegible] [illegible]ders, project team*

[illegible]: *Ayers Saint Gros—[illegible] Thomas, Sandra Parsons, Brian Hanlon, John Holiday, Scott Master, Mary Maynes, Daniel McKelley, Earl Purdue, Sean Rosebrugh, Patrick Treff, project team*

Landscape Architect: *Robert A.M. Stern Architects—Robert Ermerins, Brian Sawyer, Sarah Newbery, project team*

Interior Design: *Forte Design—Suzanne Forte, principal-in-charge with Robert A.M. Stern Architects—Raul Morillas, Pat Burns, project team*

Engineers: *Hurt & Proffitt (civil); Dunbar, Milby & Williams (structural); Benner & Fields (mechanical); Engineers, Inc. (electrical)*

Consultants: *McDevitt, Street Bovis (development manager); Kendall Associates (acoustic); Cline, Bettridge, Bernstein (lighting)*

General Contractor: *OMNI Construction; Colonial Mechanical (mechanical); Dorey Electric (electric)*

EXIT
EXIT

Rescue Transforms Columbia Landmark

Casa Italiana , Columbia University
New York City
Buttrick White & Burtis/Italo Rota
Architect

Dark and dilapidated, the interiors of Casa Italiana, a Columbia University landmark, have been transformed into a shining, colorful, functional center for scholars.

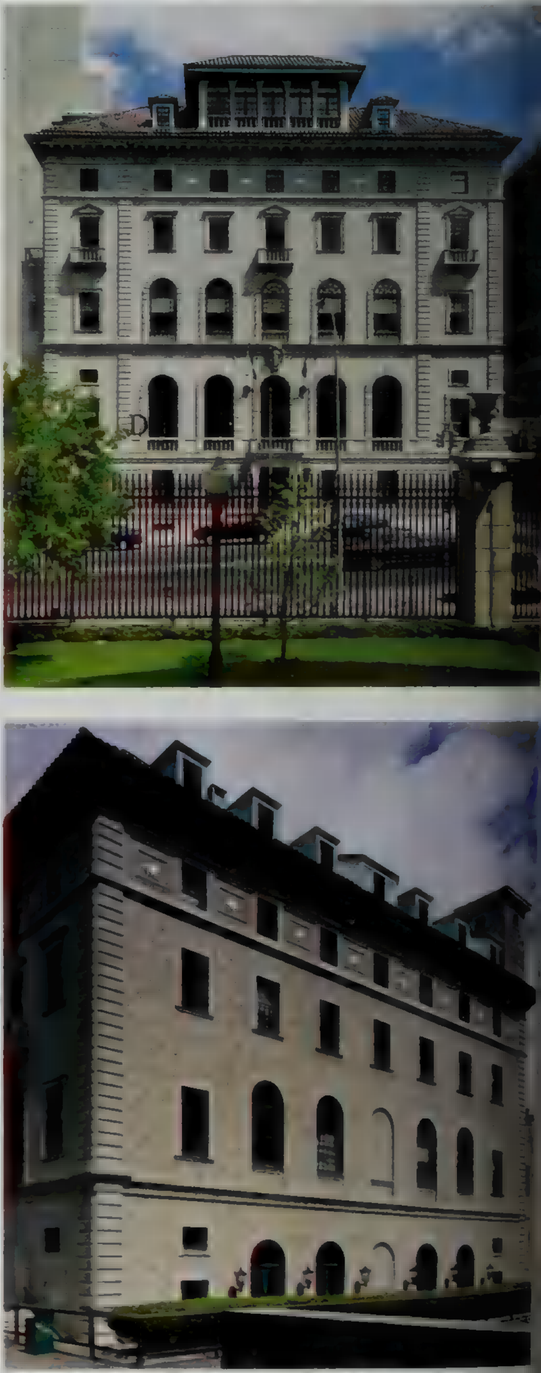
Buttrick White & Burtis principal-in-charge Samuel G. White happens to be original architect Stanford White's great grandson. That brings a certain logic into the remaking of this 70-year old Florentine palazzo into an animated center for the Italian Academy for Advanced Studies in America, better known as the Casa Italiana.

It was radical surgery. Over half the building was gutted. A new, luminous, white marble-finish stair now winds its way from the entry level to the top, doubling on the way as a fire-stair. To offset the claustrophobia of small floor plates, the top three floors, which house offices and the *studioli*, or studies, open up to create dramatic vertical clusters of spaces through an ingenious interpretation of the New York City building code which limits inter-floor connections to two floors: a floor and a half is linked to another like it, via two-hour fire doors.

Key props in the new interior are color and lighting. To unify the spaces, the corridor walls of offices and *studioli* are glazed, using a color film sandwiched between two sheets of safety glass. Subtle color differences among offices are obtained by combining available film colors to create new colors. Lighting variety is yielded by a wide range of sources and applications, including direct and indirect, refracted and reflected, concealed and visible (such as the colorful Venetian glass fixtures in the top-floor loggia meeting room, top left photograph, overleaf).

"Communication was at the heart of the design," says Sam White. The design team worked for "easy and fluent connections among individuals and groups, spontaneous and organized, formal and informal," within the Academy and the world outside. One such connection was information. The grand library was dismantled and converted into a club. Replacing it was a virtual library, with each study space hooked online into the Columbia libraries and selected other systems. Remaking the Casa's dated service infrastructure yielded a seamless outcome: sleuthing uncovered hidden spaces and cubbyholes to house the compressors, transformers, raceways, and ductwork.

Bringing the Casa into a new era took 10 years. Director Maristella Lorch, a woman of charm and perseverance, devised an arrangement by which Columbia assigned title of the building to the Italian government under a lease-back deal. Italy pledged $17.5 million to the University, including $7.5 million for construction, with the balance used to endow Academy programs (author Umberto Eco will be the first scholar.) The story is one of a dashing result achieved under tough constraints of space, time, financing, and regulation.
Stephen A. Kliment



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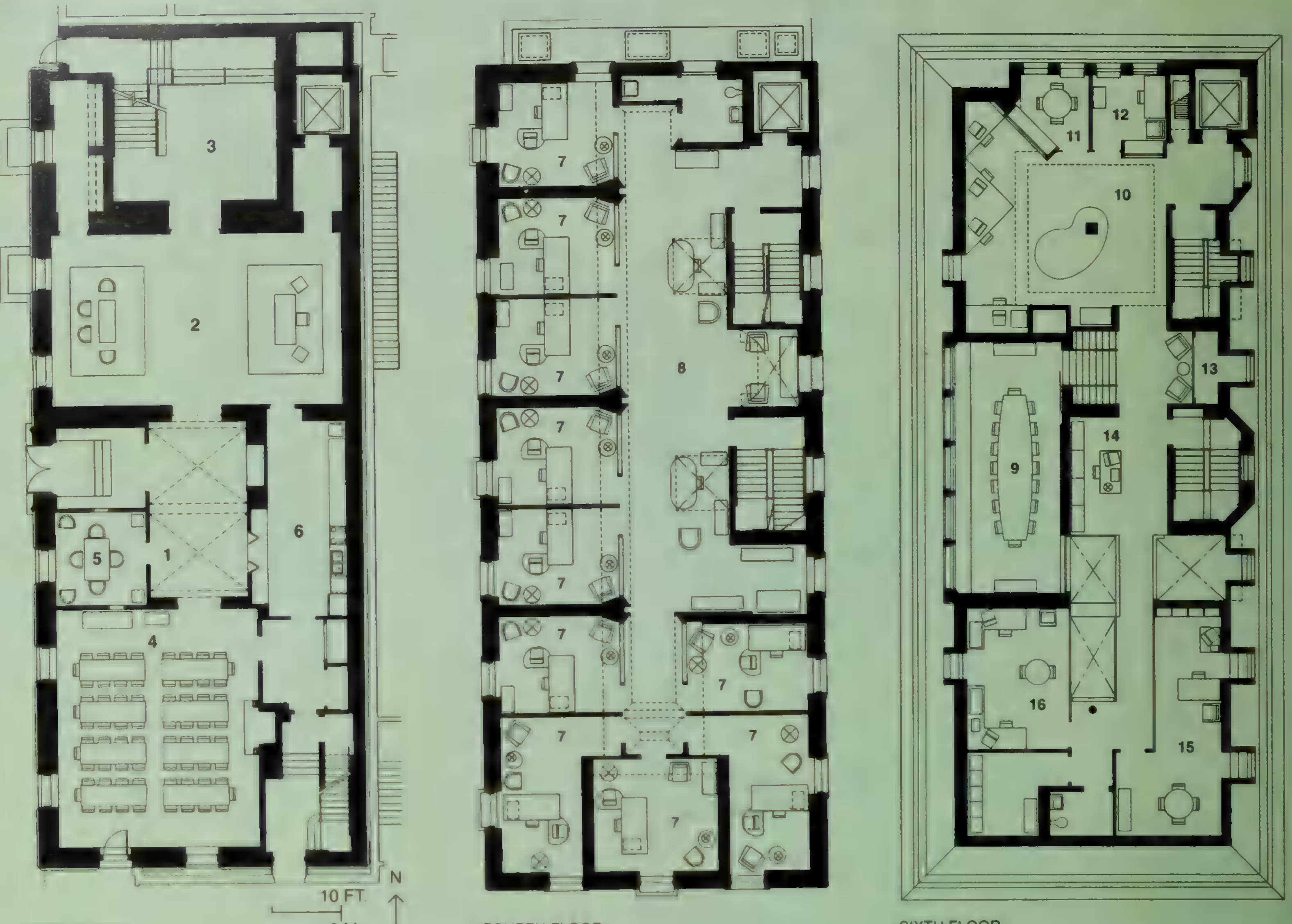
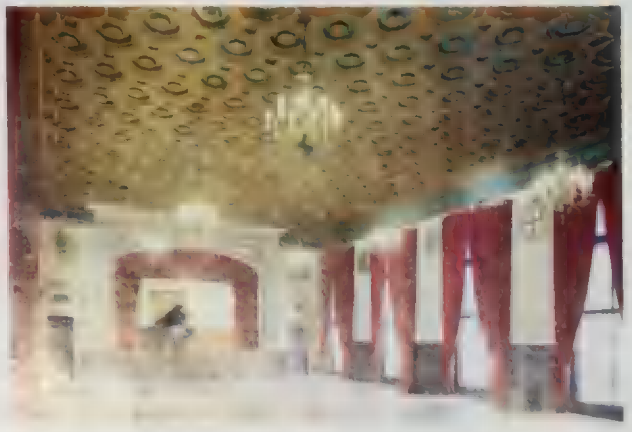
The west facade (top photo) facing the Columbia campus is a 1926-vintage, late-phase McKim Mead & White Renaissance palazzo. The east front (above) bore the scars of an abutting but long demolished townhouse. To cover the scar, bricks from three suppliers were mixed to come close to matching the brick of the surrounding walls. The exterior underwent rigorous landmarks commission scrutiny. The stair (opposite) is light and luminous.



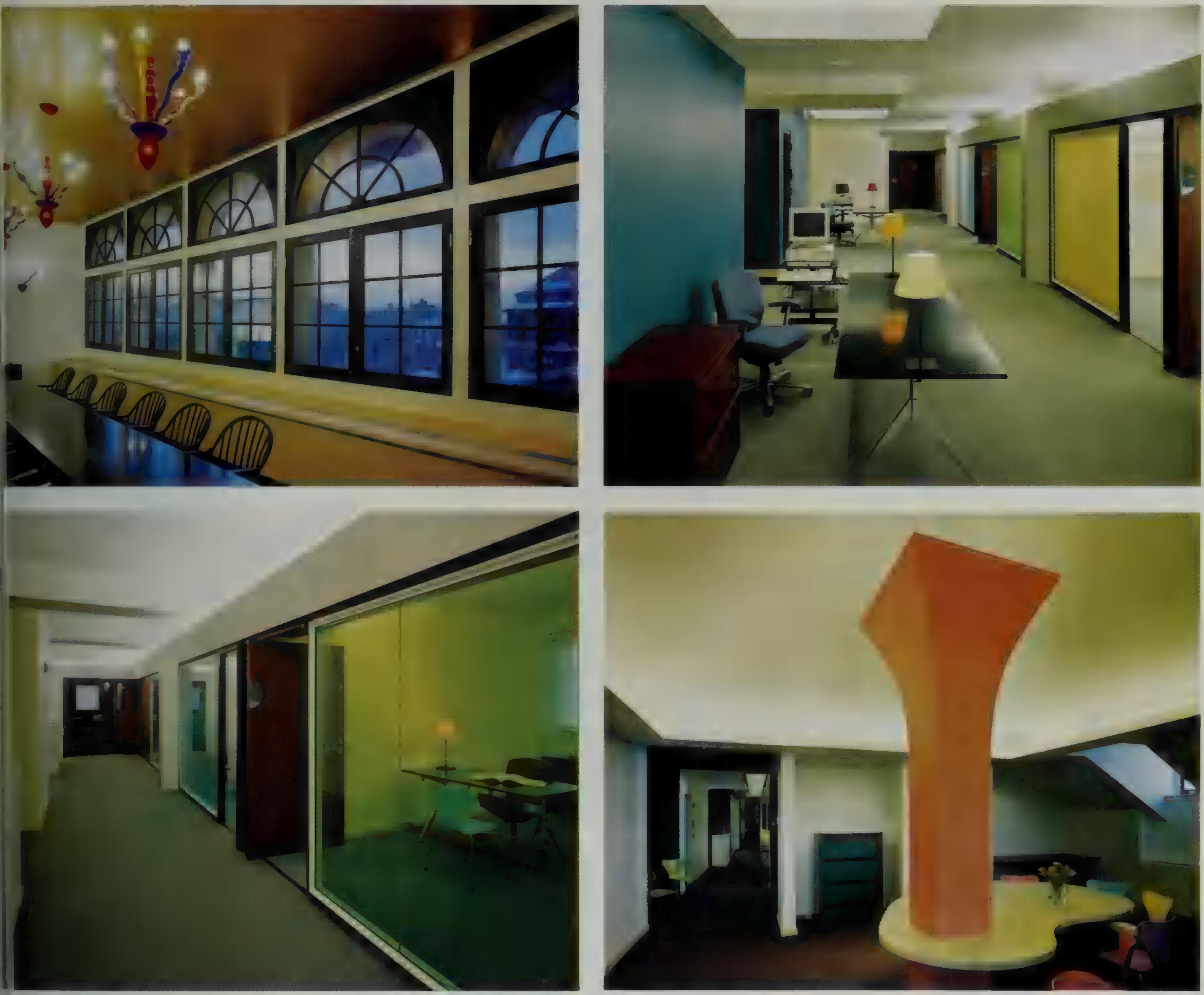
FIRST FLOOR FOURTH FLOOR SIXTH FLOOR

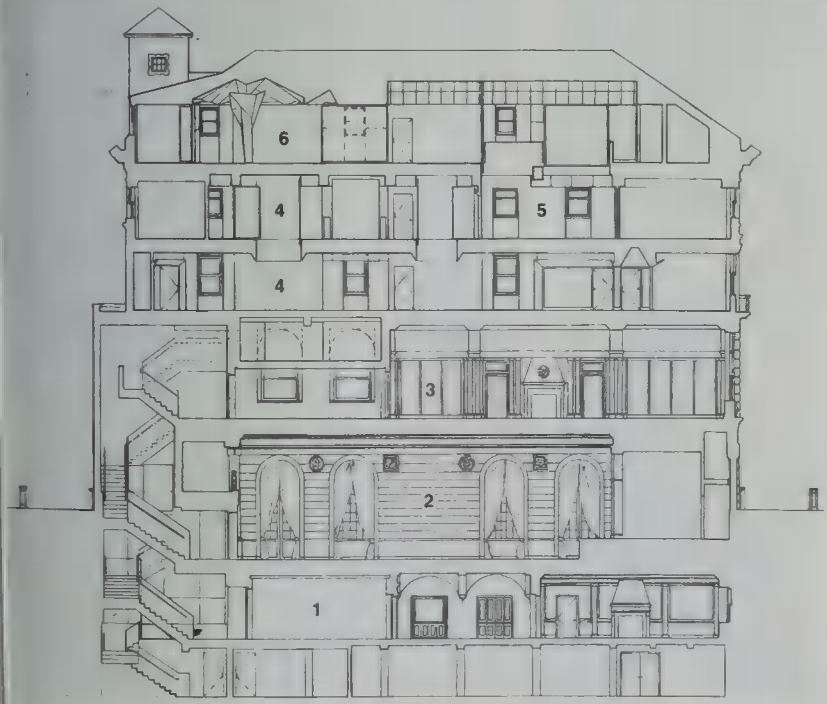
1. *Entry hall*
2. *Exhibition*
3. *Stair*
4. *Salone*
5. *Conference*
6. *Pantry*
7. *Studioli (studies)*
8. *Office area*
9. *Loggia conference room*
10. *Open office area*
11. *Conference*
12. *Office*
13. *Lightbox*
14. *Reception*
15. *Director's office*
16. *Assistant director's office*



The restored Teatro Piccolo (left) is an assembly hall with a finely detailed decorative ceiling. It faces onto a small planted court. To its arched windows was added a second layer of glazing for sound insulation from a heavily trafficked street.

Credits
Casa Italiana
Columbia University
New York City
Owner: *Italian Academy for Advanced Studies in America at Columbia University*
Architect: *Buttrick White & Burtis/Italo Rota—Samuel G. White, principal-in-charge; Italo Rota, project designer; Sean Joyner, Perry Whidden, project architects*
Engineer: *Ove Arup & Partners (structural, mechanical, electrical, plumbing)*
Consultants: *Ray Firmin Construction Cost Consultant, Amis, Inc. (cost); Jerome S. Gillman, consulting architect (building code); Cerami & Associates, Inc. (acoustical and A/V); Mélanie Freundlich (lighting); Jules Fisher/Joshua Dachs Associates, Inc. (theater lighting); Charles Calderone Associates, Inc. (elevator); Evergreen Painting Studios, Inc. (decorative plaster/painting)*
Construction Manager: *F. J. Construction Company, Inc.*





LONGITUDINAL SECTION

1. *Exhibition and salone*
2. *Teatro piccolo*
3. *Former library converted to club*
4. *Studioli (study spaces)*
5. *Classroom*
6. *Loggia and administration*

The sixth-floor loggia, with its gold-leaf ceiling and Murano glass fixtures (top left), looks out over the Columbia campus. A colored film interlayer between two laminated lights of glass is subtly varied to bring animation to the floors of offices and studioli (top right and bottom left). On the sixth floor, the impact of a column is softened with a playful cover that conceals uplights at the ceiling (bottom right).

Filling in the Missing Link

Architect Skidmore, Owings & Merrill has fulfilled a venerable campus's intentions with a fitting new entrance at Washington University's southern perimeter. And while clothing state-of-the- art laboratories in neo-Gothic dress may seem perverse, it suits this particular context.

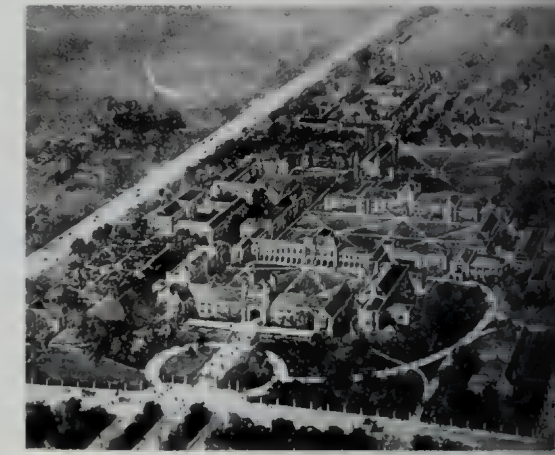
The Gothic style is well established on Washington University's campus. In 1900, architect Cope and Stewardson produced a traditional quadrangle master plan that called for individual buildings' unity and a lack of "discordant contrasts." They specified the Gothic style for all buildings, citing it to be freest from design limitations and best for expressing "the life within through outward form." These architects' first buildings (top right) established a strong westward gate and set a tone for new campus architecture that would endure until the 1960s, when several utilitarian Modernist structures crept in around the campus edges. One of these is the low chemical lab (right in site plan), which left a gaping hole in the southern perimeter.

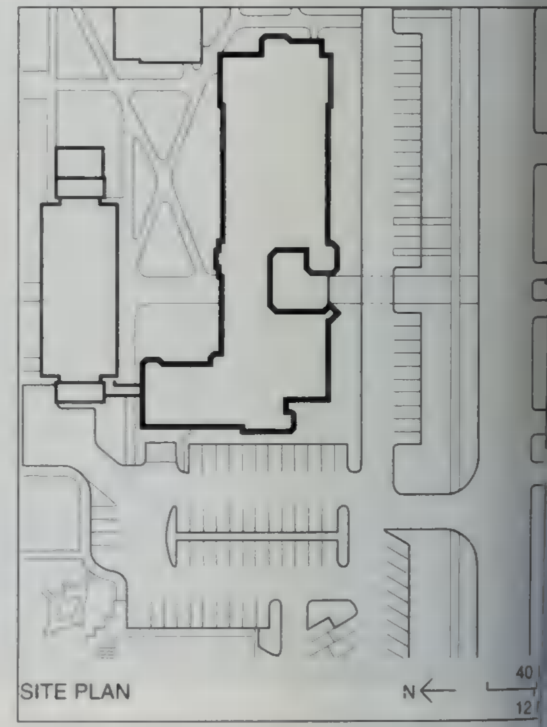
When Skidmore, Owings & Merrill was called in to design a $20-million biology/psychology building, the architects saw the opportunity to fill in the missing link, screen the chemical lab from public view, and create a secondary campus entrance as well. And, with up-to-date sensibility, they took Cope and Stewardson's view of Gothic freedom and infused the concrete frame's granite and limestone cladding with an exuberance missing in early campus structures.

The regular 10-foot 5-inch spacing of engaged columns reveals a flexible modular interior that accommodates a range of layouts, typical of modern lab structures. Mechanical and electrical services ring the perimeter. Behind a high slate roof (opposite, top center), air-handling units exhaust and bring in fresh air through "dormers." Bay windows that terminate the main facade hold breakout areas with vending machines. Next to the entrance, the tower "keep," which seems inspired by the Elizabethan Hardwick Hall ("more glass than wall," as the contemporary ditty went) holds the main stair, where the architects have used an elegantly simple vernacular typical of the building's other interiors. *Charles K. Hoyt*

Credits
Washington University Psychology Building
Saint Louis, Missouri
Architect: *Skidmore, Owings & Merrill, Chicago—Adrian Smith, design partner; Robert Wesley, managing partner; Raymond Clark, mechanical, electrical engineering partner; Stanton Korista, director [illegible] ral engineering; Brian Jack, project manager; Peter Van [illegible] [illegible] ior designer; Bernard Gandras, senior technical [illegible] Gregory Soyka, technical coordinator; Charles Besjak, [illegible] Paul Kiessling, mechanical director; Stefanos [illegible] Paul Kwong, electrical engineer*
[illegible] *Paradigm (field representation)*
[illegible] *Collaborative Inc.—Josh Meyer*
[illegible] *Constructors, Inc.*

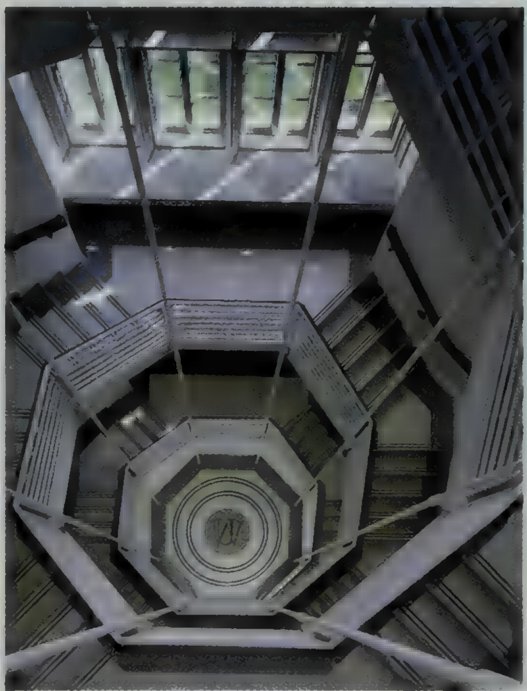
Washington University Psychology Buildin
St. Louis, Missouri
Skidmore, Owings & Merrill, Architect



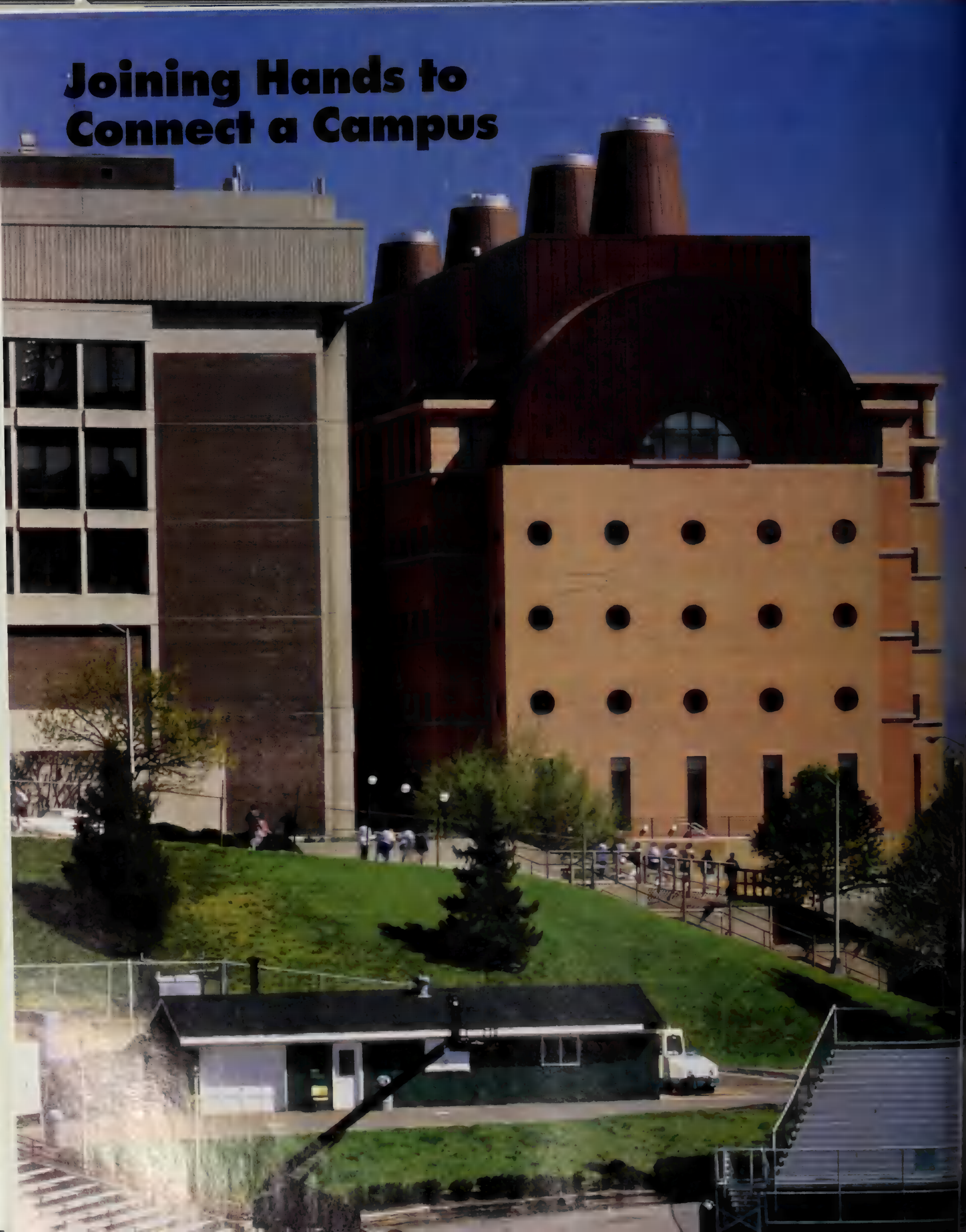


Monsanto Laboratory (left in plan) was built in the 1960s in jarring Modernist styl to face Washington University's otherwise homogenous central quadrangle (far left), leaving a large gap in the campus's public face to the south. The new building heals th wound with facades of Missouri red granit and limestone that frankly reflect the modular plan within.

Nick Merrick© Hedrick Blessing, photos

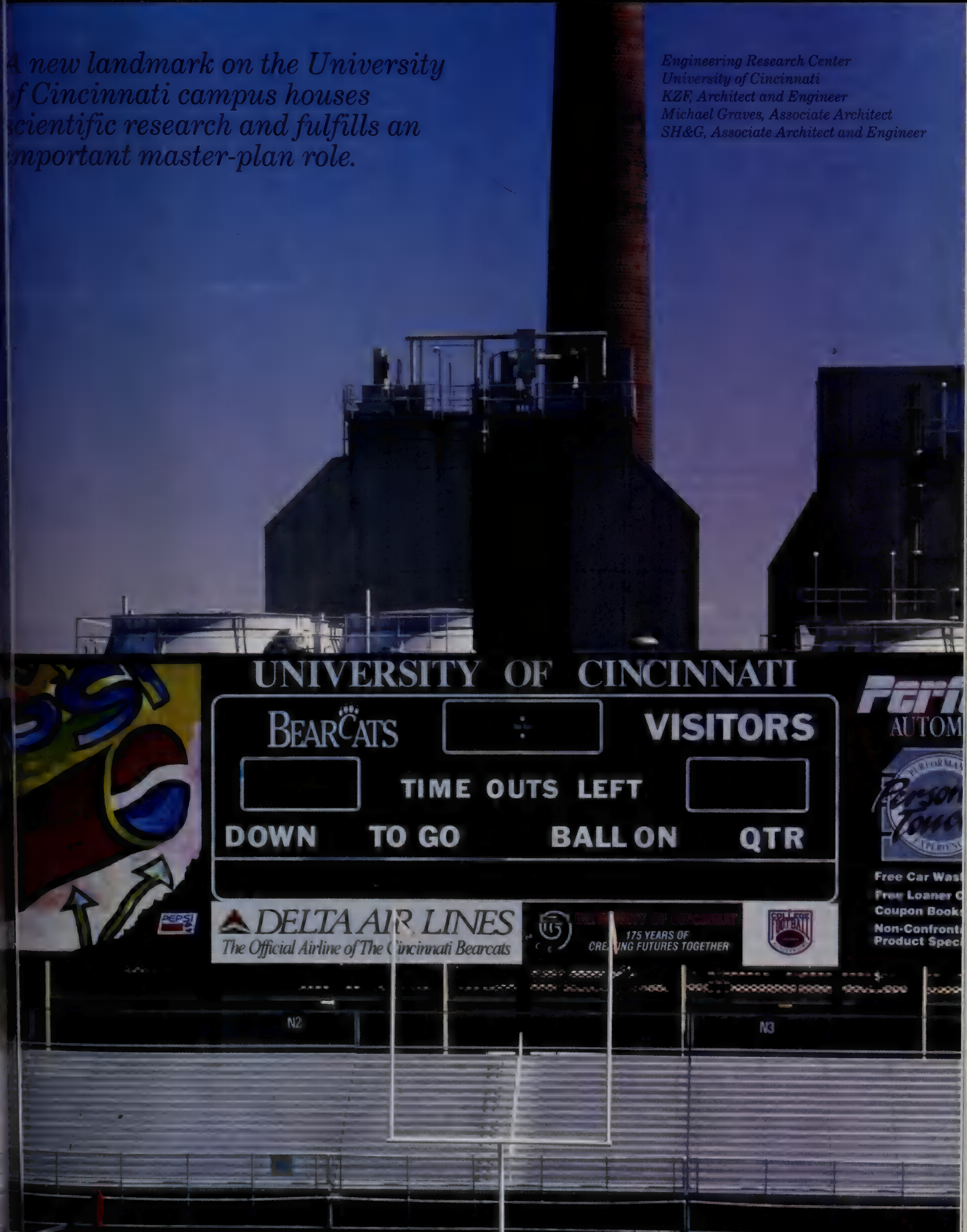


Joining Hands to Connect a Campus



A new landmark on the University f Cincinnati campus houses cientific research and fulfills an mportant master-plan role.

Engineering Research Center
University of Cincinnati
KZF, Architect and Engineer
Michael Graves, Associate Architect
SH&G, Associate Architect and Engineer



© Steve Brooke photos except as noted

Campus architect Ron Kull describes his ambitious master plan for the University of Cincinnati as a grid-like system of "force fields" (see Up Close). A keystone of this plan is the new Engineering Research Center. Three major design firms with specialized expertise developed successful working relationships to resolve its complexities.

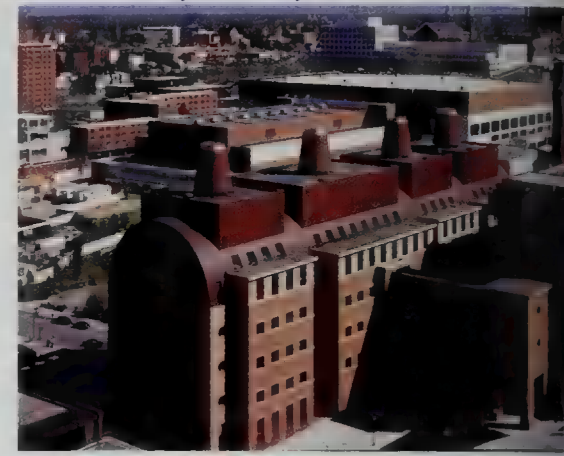
The new building's users were not clearly defined when the university commissioned architect KZF to help in site selection and programming. Initially, the only requirement was for a facility where professors from diverse fields such as environmental biosciences and aerospace could carry out experiments with student help to further scientific knowledge. (Financing for these projects was to come through grants from public and private sources, part of which would go toward running the building.) To determine functional criteria, prospective faculty users toured other research facilities around the country and pondered how to make the building as flexible as possible, while still meeting exacting requirements. Their wish list included super-clean rooms for microelectronics with particle ratings down to class 10, vibration-free scanning-microscope environments, and non-polluting exhausts of contaminated air.

KZF brought in architect Smith, Hinchman & Grylls for its extensive experience with highly technical buildings and ability to offer the committee cost alternatives (such as a choice between piped liquid oxygen or moveable casework) within the $26.2- million budget. Early money-saving decisions included placing vibration-free spaces, including clean rooms, on the ground floor to support the required extra-heavy structure and placing air-handling units under the roof (section opposite), so pollutants exhaust directly through bundled stacks in the conical towers.

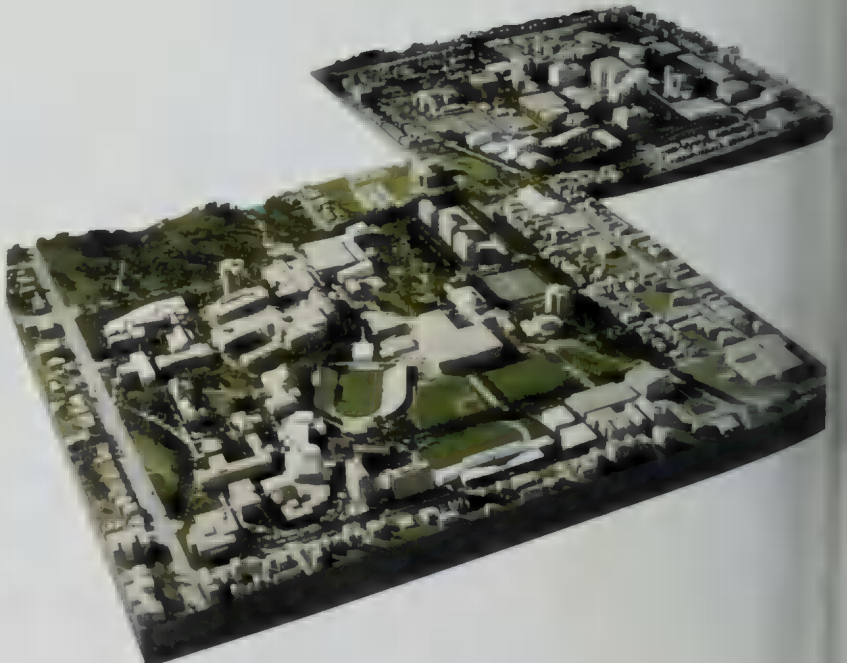
But the professors wanted more than advanced technology in their 173,000-square-foot building. "High-profile" design was a surprise that meshed well with Kull's master plan because of the highly visible, if narrow, site eventually selected (right, bottom) adjacent to the main engineering building. KZF called on a Cincinnati alumnus, architect Michael Graves ,who designed a clear internal-circulation pattern that brings daylight into both corridors and offices and cuts through the building with a two-story lobby tieing the building into the campus master plan (right, top). Graves clad the walls in blue stone and orange terra cotta, and used colored precast concrete lintels to span large openings. The barrel roof is copper. A high colonnade marks the main entry.

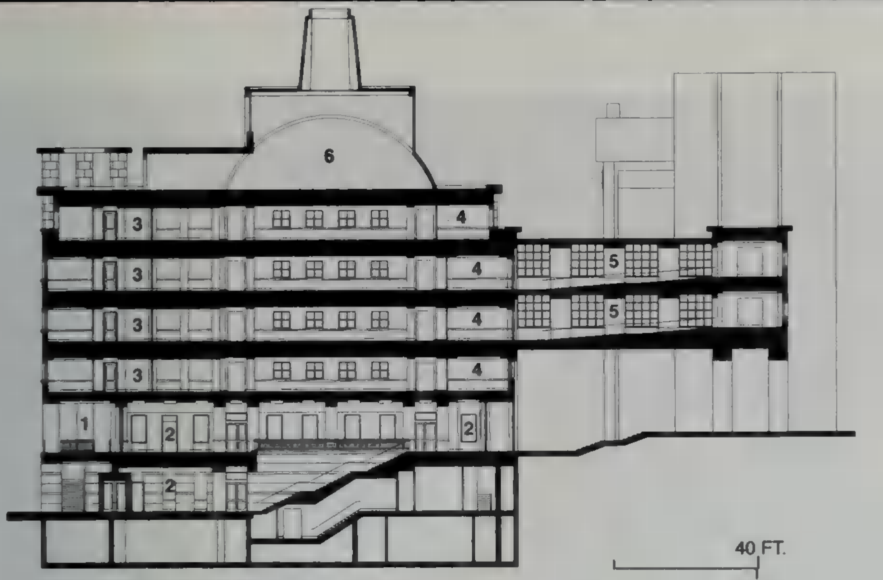
How did the relationships among three major firms work out? "It was almost intuitive at times," says KZF manager of operations William Wilson, describing how each firm's way of working became clear to the others. During design, representatives of the three firms met on-site for week-long workshops attended by representatives of the user committee, the university administration, and the state. The result? The architects received approvals quickly and completed design *and* construction documents within 11 months. Following this satisfactory experience, SH&G, Graves, and KZF are currently pursuing commissions in association with one or both of the other firms.

Would its users want anything different in the new research center? Professor Edward Grood, a member of the academic committee that determined requirements, says he would have liked to see a central corridor between labs (made difficult by the site's restricted width), and more breakout and meeting rooms (given up to meet budget and to maximize basic-function spaces). "There are always trade-offs," he notes. *Charles K. Hoyt*

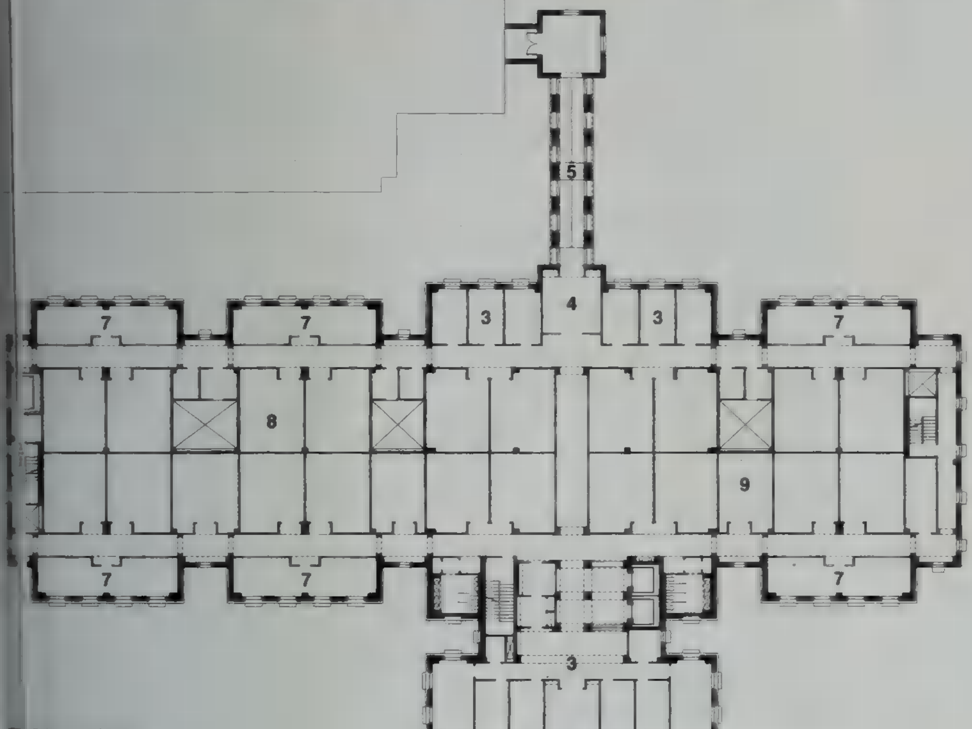


Architect Michael Graves aligned the building's front entrance—marked by a colonnaded office pavilion—with a major campus entry road (above). Inside, an internal stair (and elevator for the handicapped) makes a transition to an upper pedestrian circulation system. A bridge (top) connects the research building with the main engineering facility.

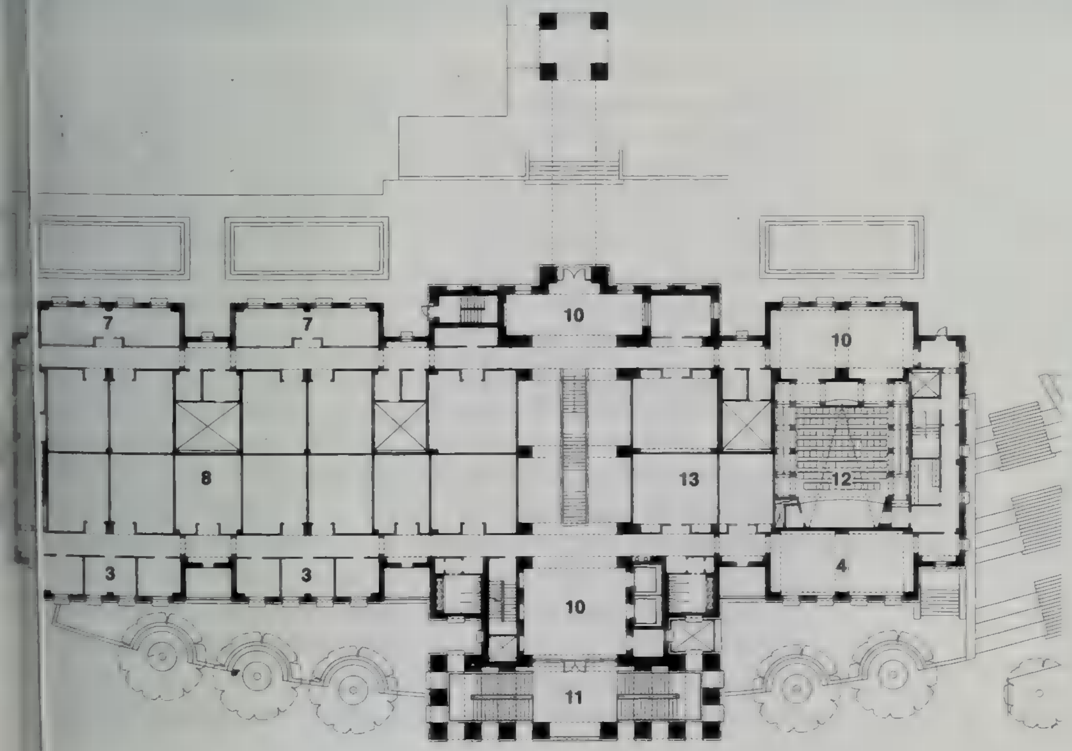




EAST-WEST SECTION



T CAL FLOOR



Up Close

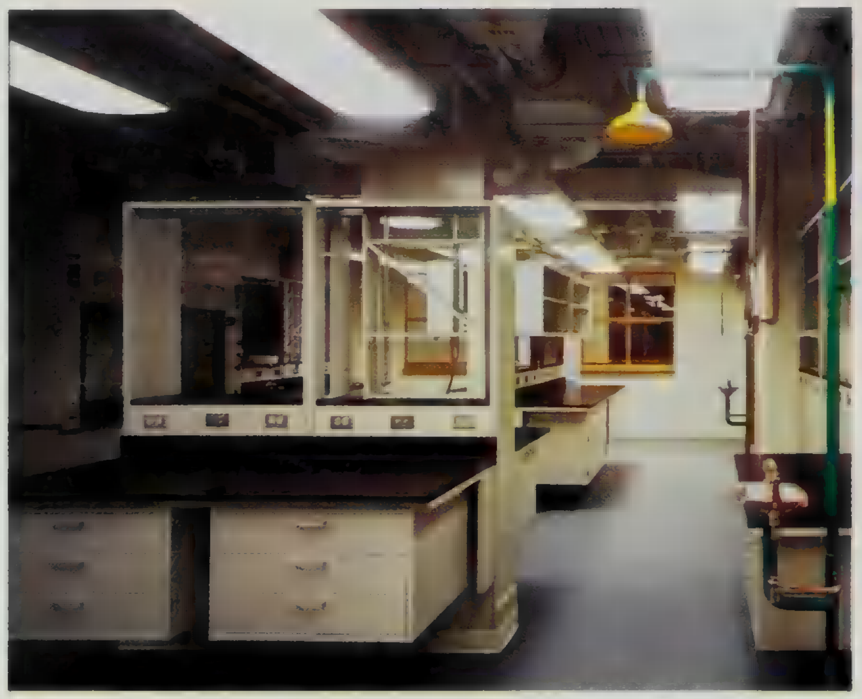
"More than half of prospective students make up their minds about enrollment in the first five minutes of seeing campuses they've chosen as candidates," notes university architect Ron Kull. Cincinnati's campus had become less than inviting. From a polite line of 19th-century buildings on a wooded ridge (left in site model), the campus had grown to a sprawling cacophony of haphazardly sited buildings in every conceivable style infilled with paved roads and parking.

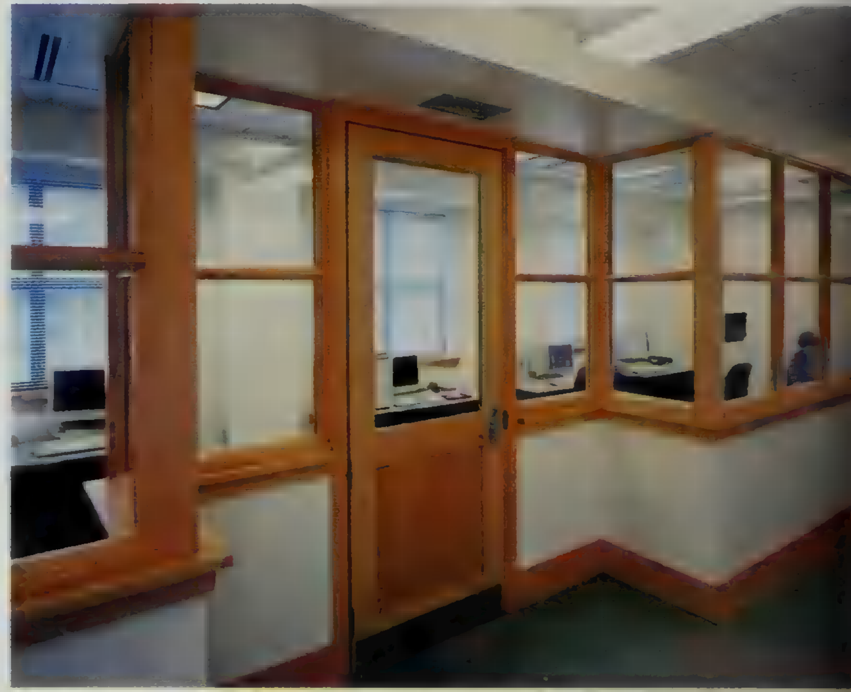
Program: Give the campus functional and visual coherence through a system of infill construction while greatly increasing open green space and pedestrian circulation.

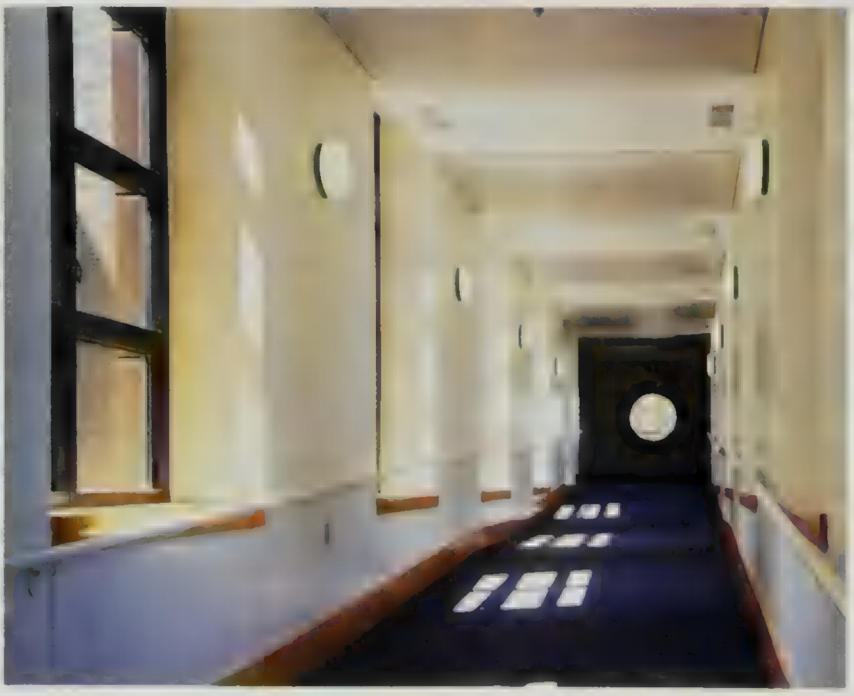
Solutions: Kull overlaid the existing plan with grids (or force fields) generated by the alignments of major existing buildings and site features. Prominent among them is the diagonal orientation of the U-shaped stadium. Its open end faces a ravine sloping down toward the isolated medical campus (upper right in model), suggesting a major pedestrian axis connecting the two areas. A large green will become part of these landscaped walks, replacing a parking lot in front of the Engineering Research Center (opposite, top left). Parking is moving into a garage now under construction. The center is the culminating view on another critical axis—the entry drive onto the main-campus from the east (right in model). The master-plan's "signature building blocks" in design or construction or built, include a performing-arts center, a medical-arts building at the entrance to the northeast campus, and the arts and architecture school.

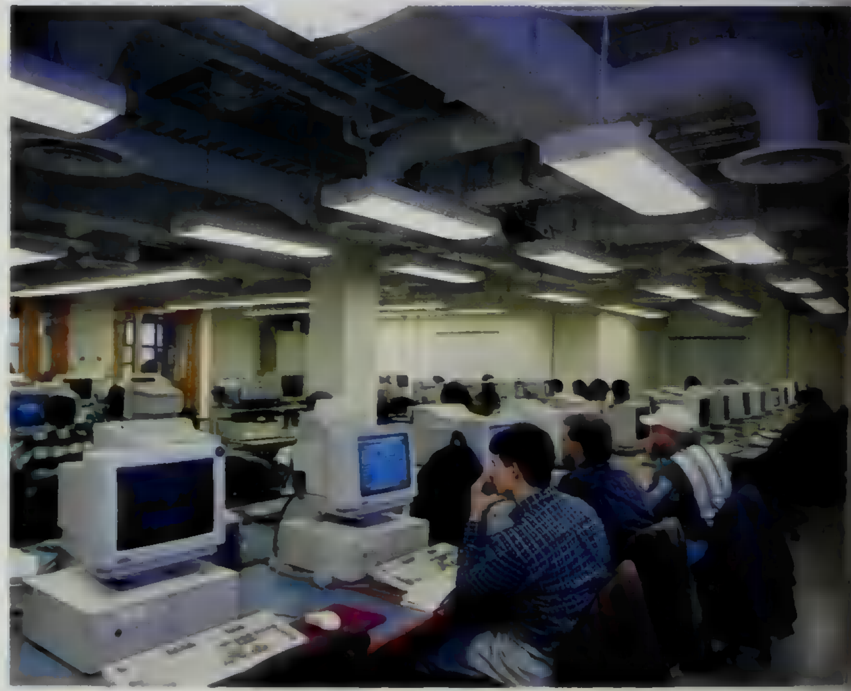
Statistics: Planned student population: 3,500 students. Campus area: 164 acres. (Ohio State University with a similar number of students has 1,600 acres.)

1. *Loggia*
2. *Lobby*
3. *Administration/ faculty offices*
4. *Meeting room/lounge*
5. *Bridge*
6. *Mechanical*
7. *Graduate student office*
8. *Wet laboratories*
9. *Dry laboratories*
10. *Lobby*
11. *Loggia*
12. *Lecture Hall*
13. *Seminar rooms*









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Typical floors are split into wet labs to the south (top left) and dry labs to the north (above). Exposed utilities in both sections are routed around the ceilings and plugged into as needed from below in anticipation of frequent room reconfigurations to meet the needs of changing users and experiments. These overhead feeds allow partitions to be standard stud and drywall, the most economical construction to move when it does not contain pipes, wiring, and ducts.

Interchangeable casework units in wet labs were a cost-engineering option chosen by the users over piped liquid oxygen. The hung units allow for easier maintenance—a major consideration in all planning. Exterior and interior windows allow deep penetration of daylight within lab areas. A major pedestrian axis on the campus master plan passes through the research center's lobby (opposite) where it makes a one-floor grade change from front to back.

Credits

Engineering Research Center
University of Cincinnati
Cincinnati, Ohio
Owner: *The State of Ohio*
Architect and Engineer: *KZF Incorporated—Donald L. Cornett, project manager and*

ncipal-in-charge; William H.
son, project architect; John R.
ringer, Joseph C. Nader,
ject mechanical engineers;
A Bennett, project structural
ineer; Joseph P. Oppold,
ject lighting and electrical
ineer; William B. Sandmann,
ject electrical designer;
ald L. Schumer, site
resentative
ociated Architect: *Michael*
ves, Architect—Michael
ves, design principal;
mas Rowe, senior associate-
harge; Keith McPeters,
ect manager; Mary Yun, job
ain; Saverio Mango, Andrea
g, designers
ociated Architect and

Engineer: *Smith Hinchman & Grylls—Andrew Vazzanio, planning principal; Jeff Hausman, project manager; John Flynn, lab architect; Stanley Mah, electrical engineer; Eric Kirkland, mechanical engineer; Stephen Kirk, costs and value engineer*

Consultants: *Hargreaves Associates (landscape); RWDI, Ltd. (wind-tunnel testing)*

Prime Contractors: *Monarch Construction (general); Banta Electric Contractors, Inc. (electrical); Peck, Hannaford, & Briggs Company (mechanical); Stark Plumbing (plumbing); Dalmation Fire, Inc. (fire protection)*

Lab Science Goes Live

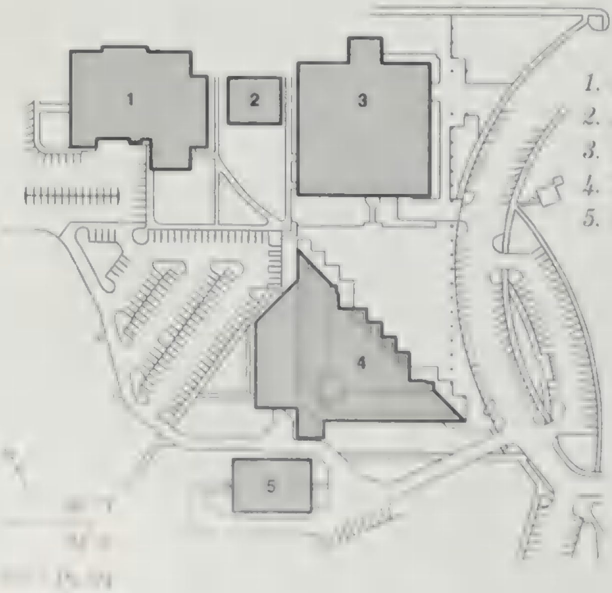
Tomanek Hall, Fort Hays State University
Hays, Kansas
Horst, Terrill & Karst, Architect
Stecklein & Brungardt, Associated Architec

Fort Hays State University's physical sciences departments teach students living over an enormous geographical area from a compact, modest new building.

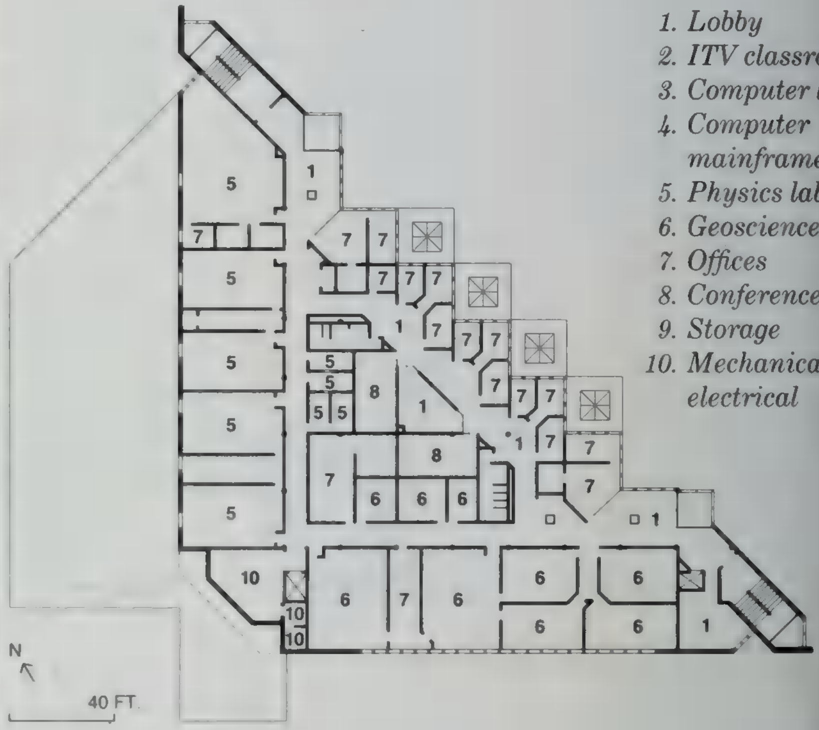
To reach the student population over a vast 48,000-square-mile area with science classes, Fort Hays State University has turned to interactive teaching video (ITV). Three ITV lecture halls in newly completed Tomanek Hall have camera positions at the rear of the rooms, and over the benches where instructors conduct experiments. Students in remote locations are also on-camera and their questions are answered in real- time. Computer technology is totally integrated in the physical sciences labs, where computers have been installed in custom wet-lab casework, and see-through fume hoods allow instructors to supervise students at work (lower opposite).

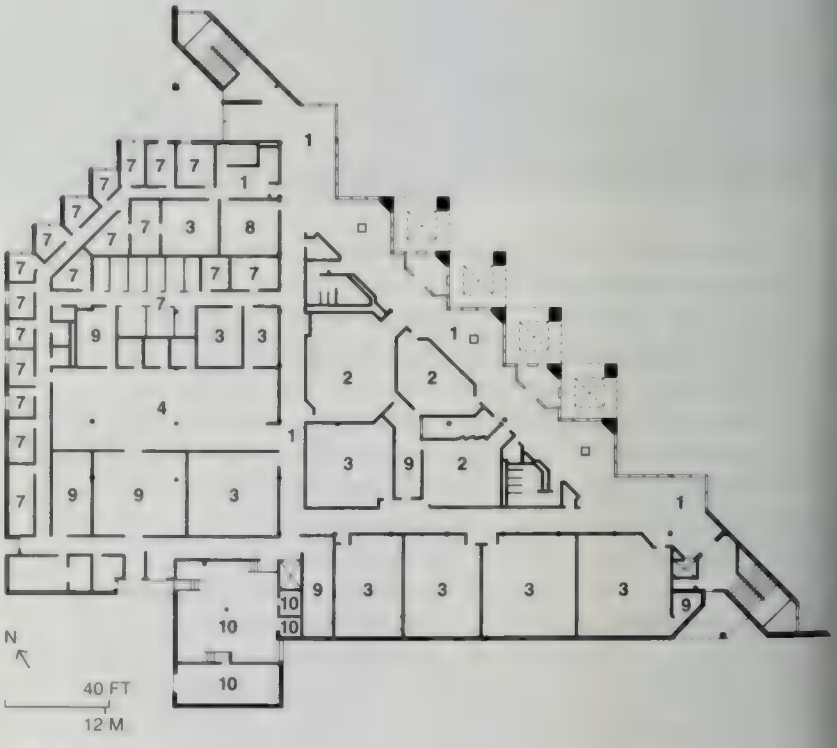
Overall, the 45-degree triangle footprint for the building responds to specific site issues, extending the campus quadrangle to include this building (site plan below), and keeps established views and pathways between buildings clear. The chosen building form also admits daylight into departmental offices and nearly all the laboratory spaces through the northeast-facing sawtooth-shaped exterior wall. The building exterior is clad with Indiana limestone. *Charles Linn*

Credits
Tomanek Hall
Fort Hays State University, Hays, Kansas
Owner: *State of Kansas*
Architects: *Horst, Terrill & Karst—Gary Karst (project designer), Mark Franzen (project architect), Steven Scannell (specifications), Charles Smith (job captain)*
Associated Architects: *Stecklein & Brungardt—Alan Stecklein*
Consultants: *Finney & Turnipseed (structural); Hoss & Brown (mechanical/electrical)*



1. *Malloy Hall*
2. *Heather Hall*
3. *Forsyth Library*
4. *Tomanek Hall*
5. *Power Plant*

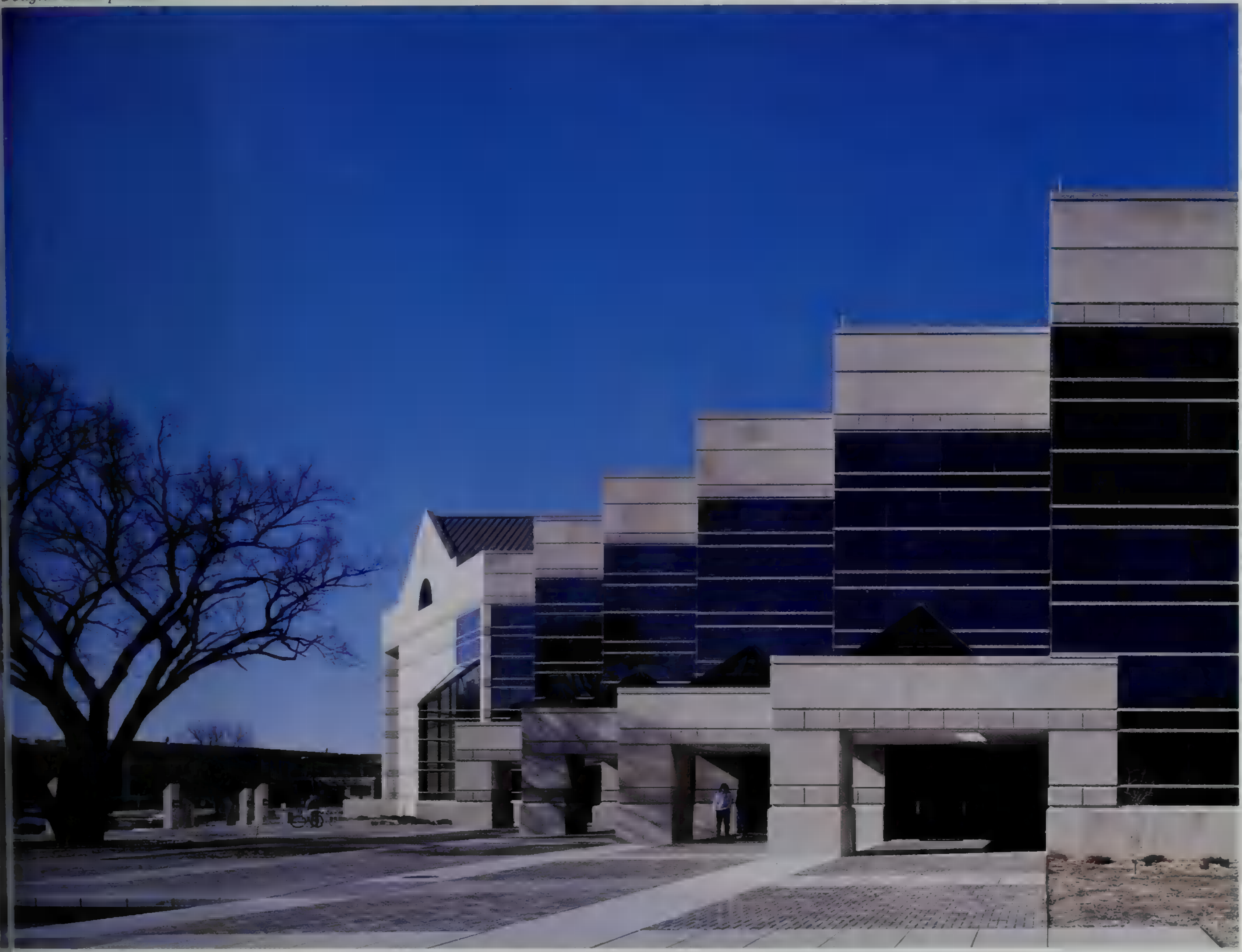




FIRST FLOOR

1. *Lobby*
2. *ITV classroom*
3. *Computer lab*
4. *Computer mainframe*
5. *Physics lab*
6. *Geosciences la*
7. *Offices*
8. *Conference roo*
9. *Storage*
10. *Mechanical/ electrical*

Douglas Kahn photos



Harvard Hub Takes On New Aura

A team of architectural firms brings out the best historic qualities in a Harvard landmark while providing for bright, active, up-to-date uses that the original architects never envisioned.

In section, it is lively, one might say almost Postmodern. Upstairs is a grand college dining hall hung with portraits of illustrious alumni, paneled in oak, lined with stained-glass windows, and crowned with hammerbeam trusses; here one feels powerfully the institutional presence and history of America's oldest university. Downstairs is a casual eatery, a pleasant, low-ceilinged space with linoleum floors, whose infrastructure accommodates cables that link to the Internet, and decor featuring, not collegiate memorabilia, but LED screens that typify the speed and ephemerality of contemporary life. The building that contains these counterpoints is Memorial Hall at Harvard University. Built in the 1870s to commemorate Harvard's Civil War dead, it is, says the project's restoration architect, Robert Neiley, "the finest example of Ruskinian Gothic in America." But the building, designed by William Ware and Henry Van Brunt, had been for years underused. Once the college dining hall, the great space became an exam room, and the basement housed such uses as the university radio station and B.F. Skinner's lab of behavioral research.

Several years ago, Harvard's campus planners, in collaboration with Venturi, Scott Brown & Associates, began transforming Memorial Hall from a neglected monument to a center for campus life. Today the great dining room (overleaf) has become Annenberg Hall, where first-year students eat, and the basement is reborn as Loker Commons, where students, faculty, and staff can buy lunch and espresso, and find numerous (but never enough) outlets for their laptops. "There was pressure to create a student center," says Philip Parsons, Director of Planning at Harvard. "But, in these multicultural days, it seemed better to make a place where the entire university community would feel welcome."

VSB & Associates (working with a team of consultants, including Neiley's firm and Bruner/Cott & Associates) have taken two complementary routes. Upstairs, where a lobby still holds memorial plaques, the architects emphasized restoration over invention, making these spaces function in 20th-century terms while altering as little as possible the powerful and idiosyncratic architecture. They removed awkward modernizations, such as mercury-vapor lighting (replacing it with period-style fixtures), cleaned and restored finishes, completely replaced hvac systems, and built an addition housing a kitchen that serves several thousand meals daily. (The restoration is fastidious but not stuffy: On one entry door, for instance, there remains the carved name "Hendrix.") Downstairs, VSB's approach has been freer; here the architects have worked to achieve an almost loft-like neutrality, a space, in Robert Venturi's words, "not arty-architectural but generically flexible." They separated the linear space into distinct zones through minimal means: An interior wall separates coffee house from food concessions; a series of partitions makes the booths along the southern wall private. Carefully designed lighting accentuates these

Continues on pages 96

Memorial Hall, Harvard University
Cambridge, Massachusetts
Venturi, Scott Brown and Associates, Architects

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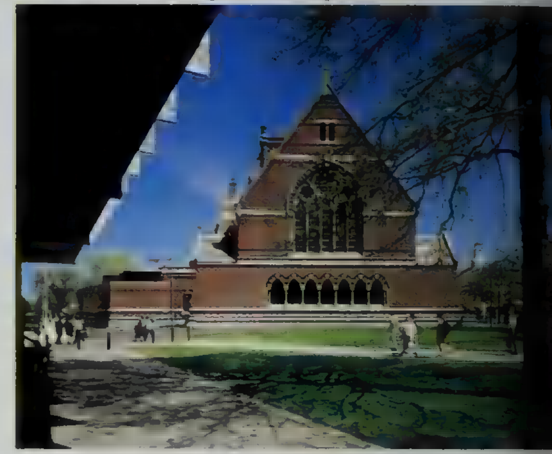

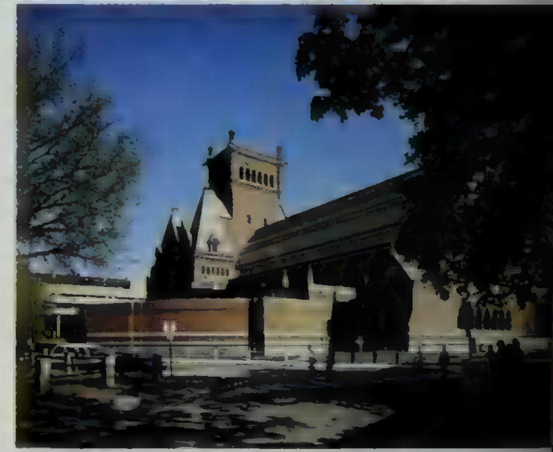

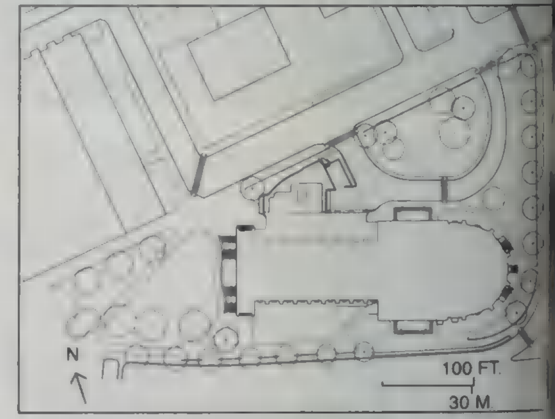

The curvilinear service wing (photos above) is a new addition, as is the commons entrance (opposite). Venturi designed the serpentine walls to contrast with the angularity of the Victorian building, distinguishing new from existing construction and blending potential intrusions into the landscape. Brick banding on the new walls echoes that of the original building, but—again to differentiate new from old—it is flat, not round.

zones: Along the south wall high windows admit daylight; the busy central area is lit from above with warm-white fluorescents and incandescent spotlights; and the interior "street" bisecting these areas is marked by fluorescent tubes with colored gels.

The designers worked to make Loker's identity owe less to architectural setpieces than to campus activity and, especially, communication. The space encourages copious communications in various modes, from low-tech tackboards to Internet hookups and LED boards. Venturi, with his interest in architectural iconography, sees the LED displays as part of a continuum that includes temple hieroglyphics and basilican mosaics. He writes: "Can it be said that the sparkle of pixels in Loker Commons corresponds to the glory of vitraux in the dining hall upstairs? In the basement of Memorial Hall, contemporary electronics succeed revivalist craft." (Philip Parsons suggests playfully that Loker, with its tackboards, menu posters, and electronic displays, points to a new design motto: "Mess is more.") Is Loker Commons an Ivy League food court—a further sign of the accelerating commercialization of society? This question troubled both the university planners and the architects, who believed that Loker should feel not like a retail outpost, but like a particular place at Harvard. And indeed it does: Loker is distinguished from the typical food court especially by what it lacks. Here one finds not brand-name concessions, but pizza and tacos; not Muzak, but rock and jazz selected by students and staff; and, most important, not shoppers grabbing snacks, but students studying. In term time, Loker can seem like an outpost of the library, and it's often hard to find a seat. *Nancy Levinson*

©Matt Wargo photo

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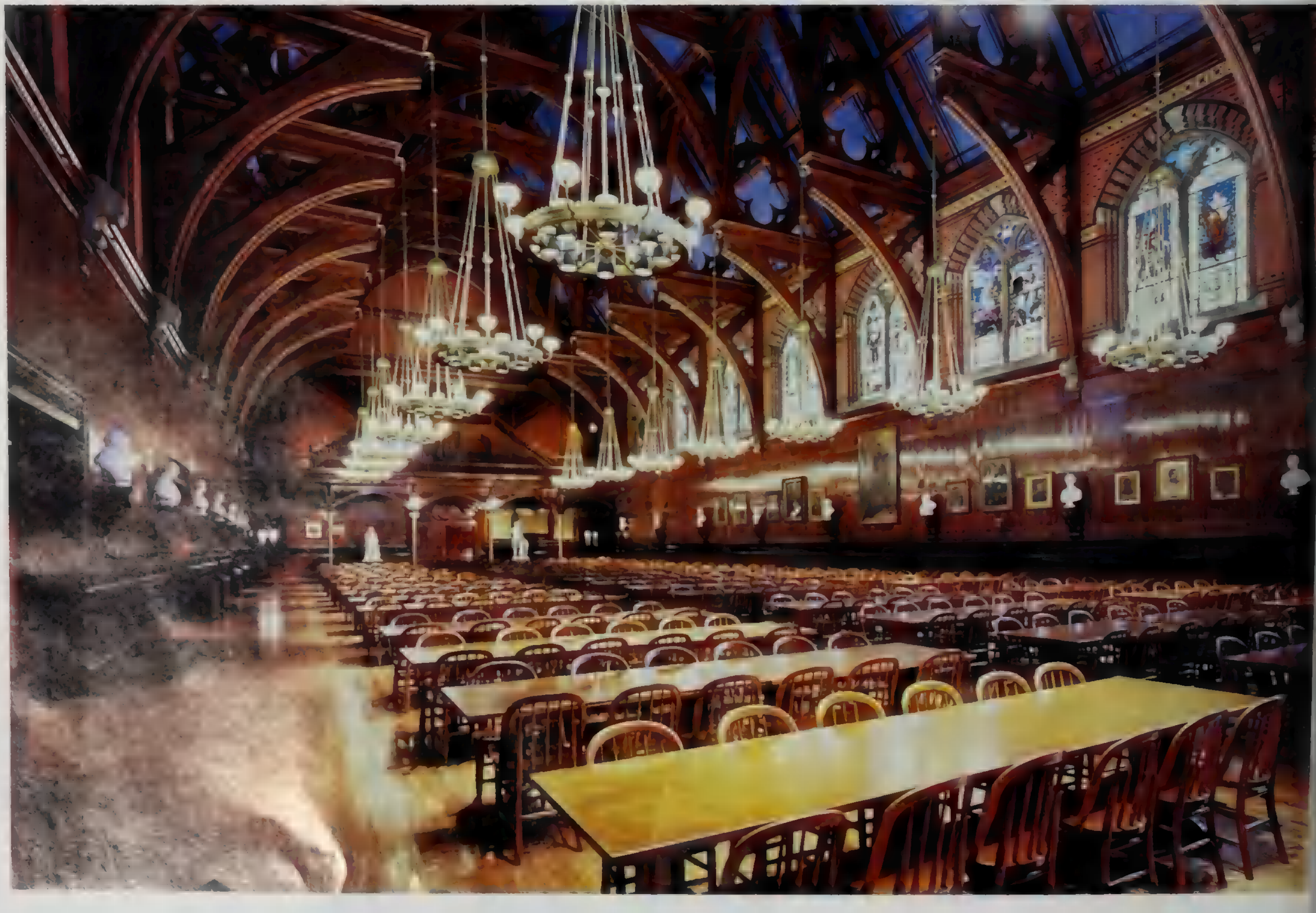
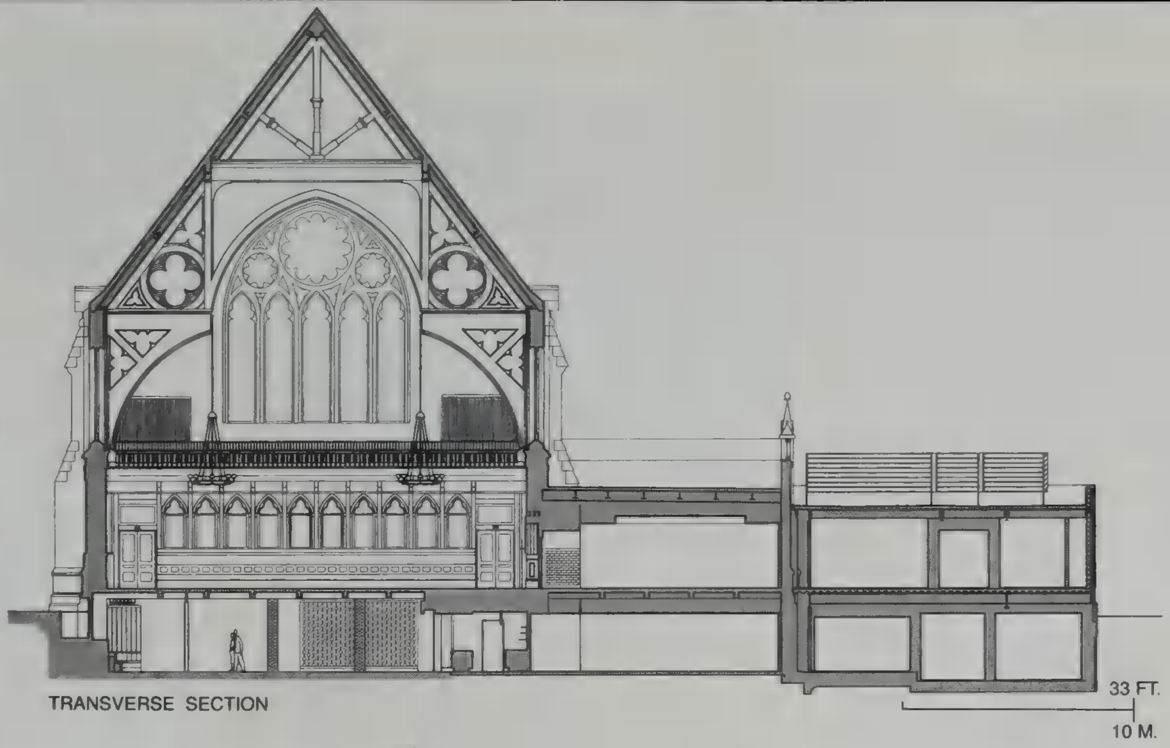
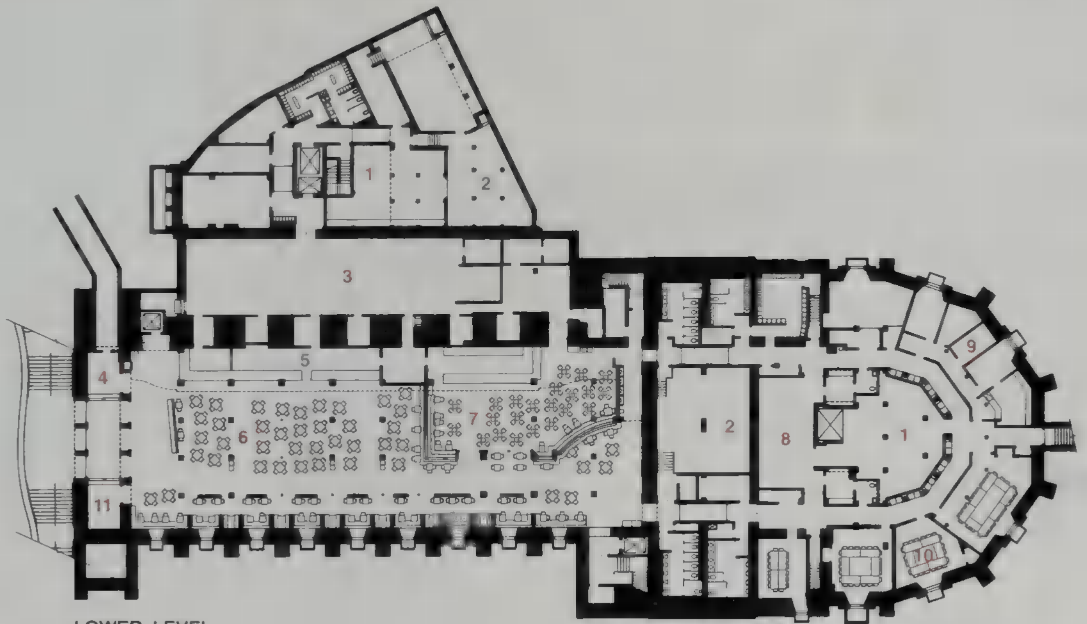


pstairs/downstairs: For many
ars, the dining hall's painted
iling was a dark mystery. New
uorescent uplights in fixtures
atching originals now uncover
(opposite, bottom). Stained-
ss designers include John
Farge and Frederic Crownin-
ield. Downstairs (opposite,
), Loker Commons features
etry selected by students.

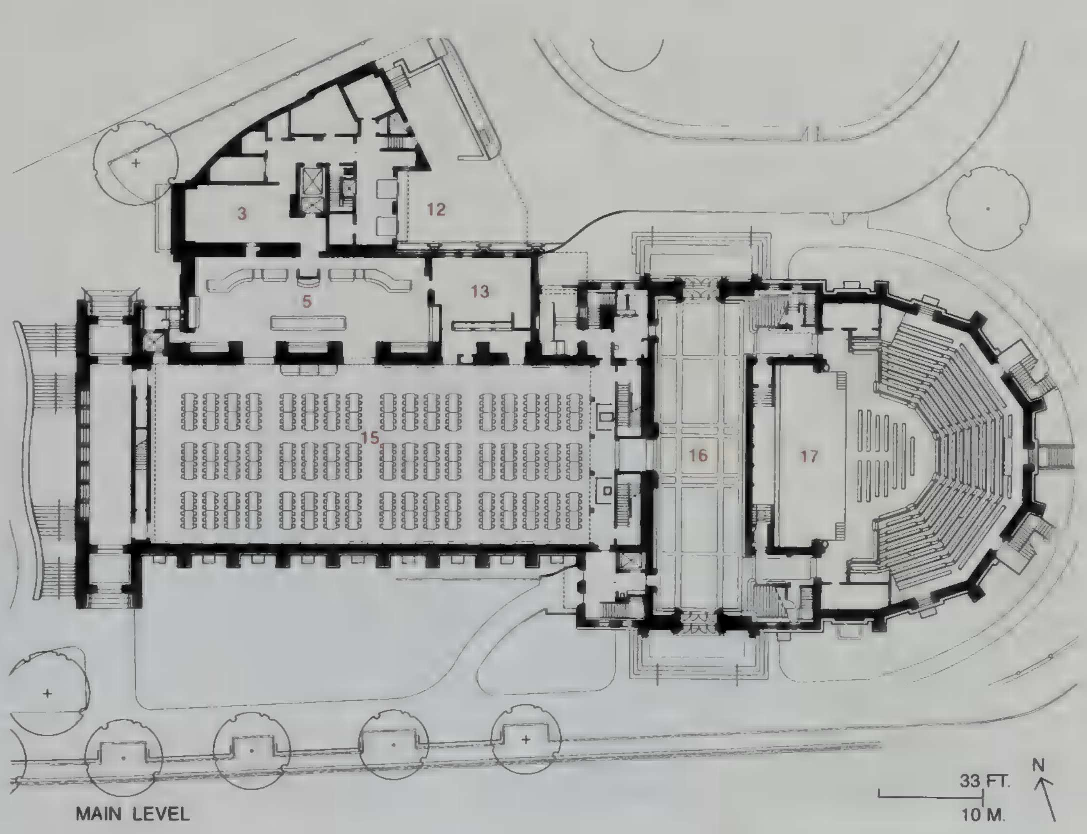


TRANSVERSE SECTION

1. *Storage*
2. *Mechanical*
3. *Kitchen*
4. *Copy*
5. *Servery*
6. *Commons*
7. *Coffee house*
8. *Green room*
9. *Offices*
10. *Seminar*
11. *Newstand*
12. *Loading*
13. *Dish washing*
14. *Box office*
15. *Dining room*
16. *Transept lobby*
17. *Theater*

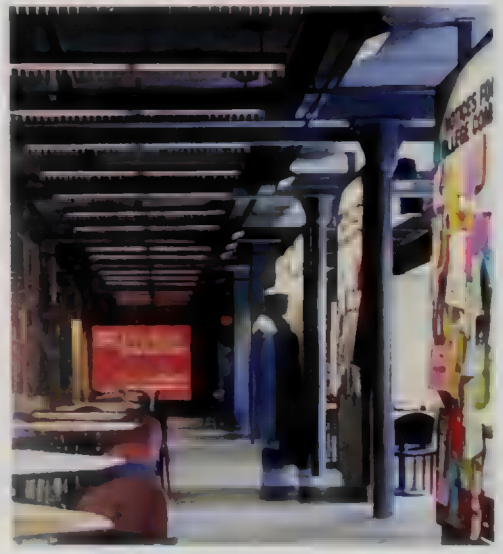


LOWER LEVEL



MAIN LEVEL

© Matt Wargo photos except bottom left



Up Close

An underutilized campus landmark present opportunities for restoration above ground and renovation in its basement, where new uses recognize current patterns of study.

Program: Restore dining hall for approximately 1,300 first-year students; new commons for the University community; restore amphitheater for lectures and concerts; new kitchen; 10 seminar rooms; sever offices; new rehearsal space; new green roon restore lobby (called the "transept").

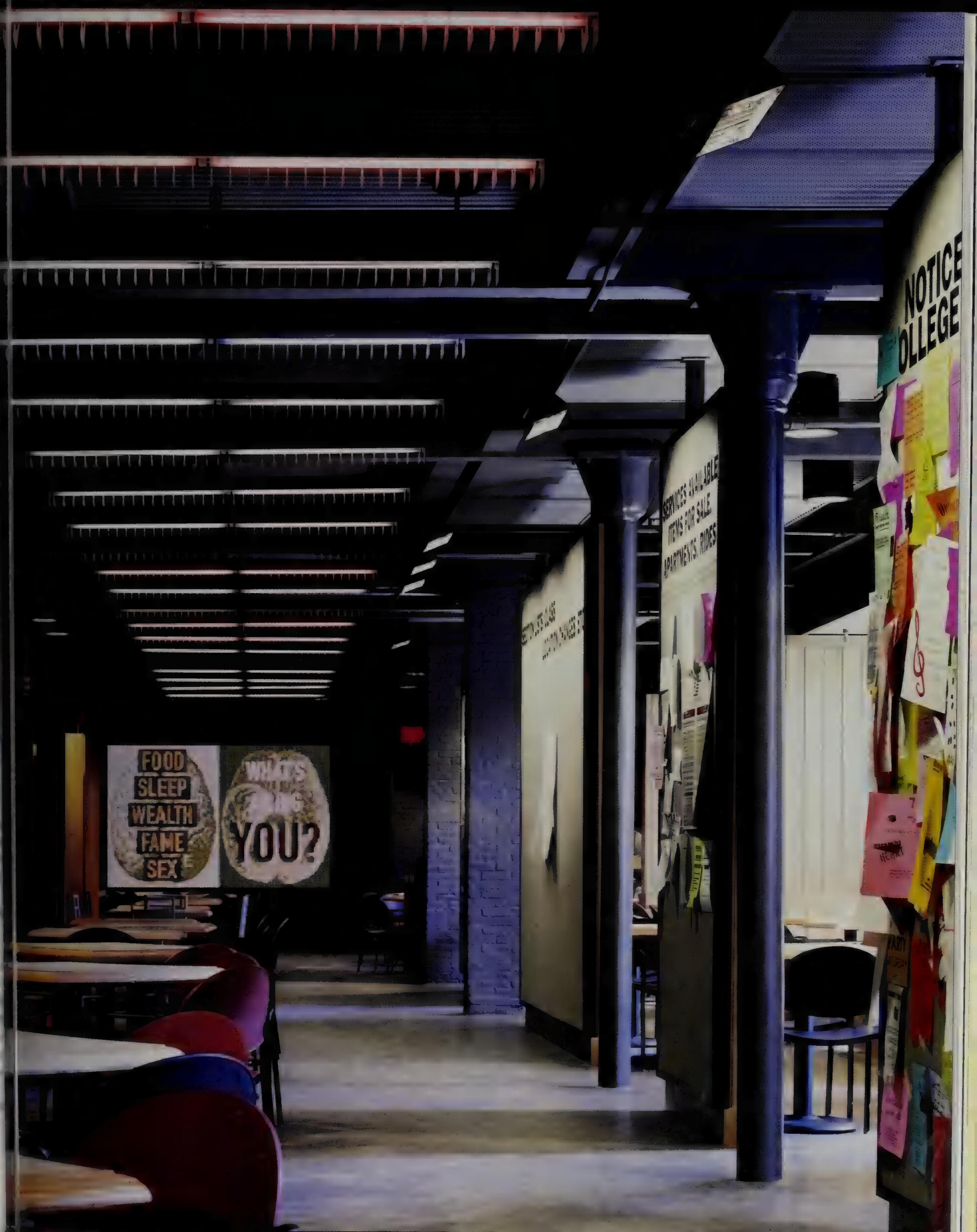
Solution: For the main level and above, fastidious restoration, while weaving in up-t the-minute support systems. For lower leve a new space with deliberate restraint contrasting with the highly decorated architecture above.

Statistics: 36,000 square feet of renovation, including the entire lower level and, on the main level, the servery and stairs; 34,200 square feet of restoration and 7,800 square feet of new construction. Cost: $18.8 million including kitchen equipment.

Loker features two LED boards: the frieze above the food counters and a screen at the end of the main passage (top, bottom right, and opposite). Both are programmed by st dents, literally making Loker into interactive architecture. Adding to the smorgas bord of communications are computers, available to all, hooked up to the Internet, and several large bulletin boards.

Credits

Memorial Hall, Harvard University
Cambridge, Massachusetts
Architect: *Venturi Scott Brown & Associates—Robert Venturi, partner-in-charge; Dan McCoubrey, project manager; Richard Stokes, project architect; Hidena Abe, Joseph Herrin, Jeff Hirsch, project te*
Associated Architect: *Brunner/Cott & Associates*
Restoration Architect: *Robert G. Neiley, Architects*
Engineers: *Keast and Hood Company (structural); BR+A Consulting Engineer (mechanical, electrical); Robert W. Sullivan, Inc. (fire protection /plumbing) Birchfield Food Systems, Inc. (food servi The Halvorson Company, Inc. (landscap Fisher Marantz Renfro Stone (lighting); George Izenour (theater); Acentech Incor rated (acoustics/audio visual)*
General Contractor: *A. J. Martini, Inc.*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FAME
SEX
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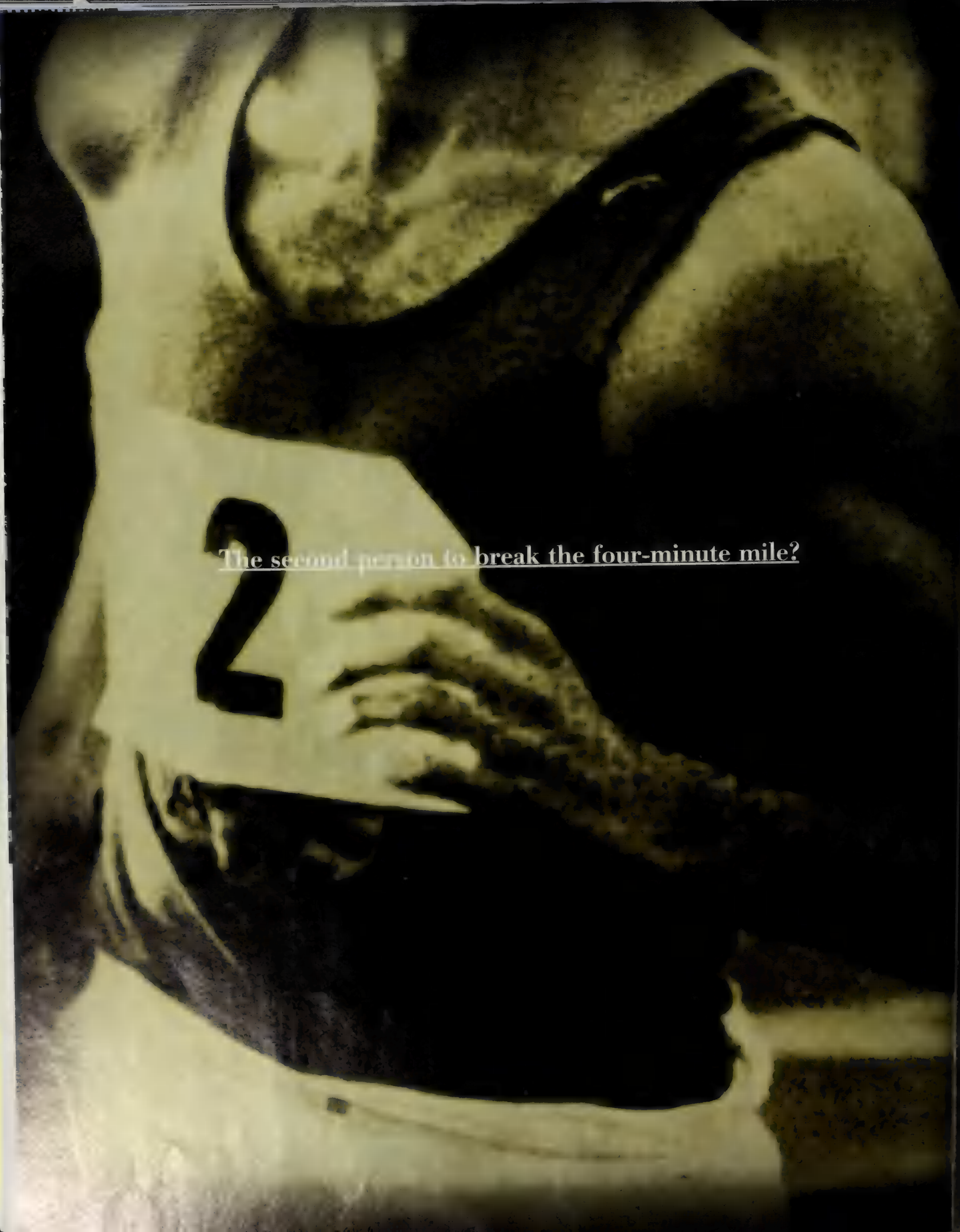
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AIA

Washington, DC... More than 700 people are expected to attend the fourth annual professional design/build conference on October 10-11 in the nation's capital, according to conference planning chair Grant McCullagh, FAIA of McClier Corporation, Chicago. Cosponsored by the Design-Build Institute of America and The American Institute of Architects, the nation's premier design/build conference will bring together owners, practitioners and leaders from industry and government to explore design/build's enormous opportunities and continuing challenges.

The Conference will have four distinct "tracks," with six sessions in each track: Approaches and Strategies; Architectural Projects; Civil and Industrial Projects; and Project Delivery and Finance. Attendees will be free to choose from among a series of special presentations, case studies and how-to seminars within any of the tracks, including:

- Findings of the Construction Industry Institute's National Design/Build Study
- Commercial/Institutional Building Case Studies
- Applying Design/Build to Transportation Projects
- Why Some of the Nation's School Systems are Turning to Design/Build
- Using Project Development and Finance Techniques to Move Projects Forward
- Award-Winning Design with Design/Build
- The Huge Environmental Market for Design/Build
- New Federal and State Laws on Design/Build
- Design/Construct for High Tech Manufacturers
- Assessing the Future of the Design and Construction Industry: Markets; Innovations

Please mark your calendar now for October 10 - 11 in Washington, DC. Last year's conference was sold out two weeks early! For further information, call the PIA Information Line at (202) 626-7482.

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The China Business Congress

"China must now subject itself to the laws of a market economy."

Jiang Zemin,
President,
The People's Republic of China, during a private exchange with delegates of The China Business Congress

Photo: Reuters/Will Burgess/Archive Photos

"It is important for the foreign investor in China to keep their eyes on the future, and to always maintain a spirit of cooperation. With these, you will find success in China."

Li Lanqing
Vice Premier,
The People's Republic of China

While Western Europe and North America wrestle with slow growth, China tops world expectations by enormous percentages, year after year. "Our target was to quadruple our 1980 GNP by 2000, said Sun Shangqing, President (Minister) of the Development Research Center of the ruling P.R.C. State Council. "We have met this goal five years ahead of schedule."

Enterprises of 160 nationalities are investing billions in the new, improved China. But even as they reap enormous benefits, foreign investors call for faster reform, better laws, and less regulation.

That is why the Development Research Center, the economic policy advisor to China's governing State Council, joined with *Business Week* and The McGraw-Hill Companies to create THE CHINA BUSINESS CONGRESS: a gathering designed for the sharing of perspectives between policymakers and the foreign investors whose capital and technology are so important to China's continued progress. Foreign investors responded enthusiastically, as did Chinese leaders. The number of ministers, vice-ministers, and industry directors attending and interacting with foreign investors overwhelmed all expectations.

Communists?

China is the fastest growing national economy on Earth. The casual visitor would hardly guess that this country was substantially different from other engines of economic growth.

But it is. Large state-owned enterprises retain a central role and the Communist government does not intend to privatize them. Ever. Foreigners participate principally through joint ventures and other cooperative arrangements with the government-run firms, enabling each state-run company to harness itself to the expertise, technology, financial wherewithal, and global market access of its foreign partners.

"We are moving from a closed state to an open economy," says **Ge Hongsheng**, Minister of China's State Council Office for Special Economic Zones. "Our links with the world economy tighten daily."

China continues to operate on a socialist command model, but unlike the old Soviet model, this one works. "The Fifth Plenary Session of the Fourteenth Communist Party Central Committee requires us to vigorously promote fundamental

"It is not wise for the U.S. to announce every six months what penalties we are going to inflict if China does not meet a certain set of conditions."

Dr. Henry Kissinger
chairman, Kissinger Associates; U.S. Secretary of State, 1973-1977; U.S. National Security Advisor, 1969-1975

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by Scott Shuster, consultant to Business Week Executive Programs, and chair of The China Business Congress

BusinessWeek
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Beyond news. Intelligence.

Reprinted from Business Week July 1, 1996 issue

AVIATION

"Aviation relates to virtually every business activity in China, while providing critically needed infrastructure," says **Kenneth E. Gazzola**, executive vice-president/publisher, Aviation Week Group. "It's no surprise that aviation is a central focus of Chinese government attention and investment." Mr. Gazzola and Michael Mecham, *Aviation Week's* Asian bureau chief, moderated a panel discussion on aviation.

SKY-HIGH SECTOR GROWTH

"In 25 years China has taken delivery of more than 250 Boeing airplanes," says **Ronald B. Woodard**, president of the Boeing Commercial Airplane Group. "During that same period our competitors have delivered another 70 or so. Now China wants another 240 airplanes in just five years. That's a big, big challenge."

And it's not only airplanes. China plans to build 11 new airports and undertake 30 large-scale airport renovations, all by 2000, a colossal building program worth billions.

"The development of an aviation industry is the measure of a country," says **Zhu Yuli**, President of Aviation Industries of China, the umbrella group guiding one of China's fastest growing and most successful industry sectors. "High technology develops very fast in a modern aviation industry, and that is a central goal for us. However investment is large and the risk is very high, so we will offer expanded opportunities for foreign partners as we move to become a leading supplier of aircraft parts to the large international airplane companies."

"We have invested... $100 million in China's aviation infrastructure. It's a good investment."

Ronald B. Woodard
president,
Boeing Commercial
Airplane Group

"Our target was to quadruple our 1980 gross national product by the year 2000. We have met this goal five years ahead of schedule."

Sun Shangqing*,
President (Minister) of the Development Research Center of the State Council of the P.R.C., and a member of the Financial and Economic Committee of the National People's Congress

shifts responding to new historical conditions." Minister Sun intones, with due solemnity. "So we will speed up reform of the financial, investment, and insurance systems!" "The National People's Congress adopted the Ninth Five Year Plan," avers Minister Ge. "This means we must extend our opening up and engage in more economic and technical exchanges, actively introducing foreign capital and intelligence and skills!"

What does it all mean? That China — by order of the Communist Party leadership — is directed to become more and more like everyplace else.

Joint Adventure

"Finding the right joint venture partner is absolutely critical to success," says **Vincent H.C. Cheng, OBE, JP**, banker, Hong Kong affairs advisor to the P.R.C., and member of the Hong Kong Executive Council. "Strong Chinese partners can insulate the business from official impasses. Relationships must be cultivated at the grassroots as well as the top levels. Encourage official input. Negotiate, never confront."

"We formed our joint venture in 1985. Discussions had begun in 1982." **Lee S. Ting**, vice-president and managing director, Asia Pacific of Hewlett-Packard Asia Pacific Ltd. recalled the days when China's opening was new. "Things were very fuzzy. There was no Chinese legal system to guide us. But in an environment where you expect change, you cannot wait for things to settle. That day may not arrive for a long time. And if you wait until then you will be too late."

More recent arrivals in certain businesses are finding China ready to let them operate on their own, with no local partner. "Our experience here has been accelerated," says **Mike Sheppard**, vice-president and managing director Asia Pacific for J.D. Edwards World Solutions Company, a U.S. software developer for the manufacturing, distribution, construction, and energy-chemicals industries. "Three months after arriving we received our wholly foreign-owned enterprise license and we began hiring. The key for us, a conservative, privately-held company was our ability to meet the authorities. I brought my tax director and my finance manager from the U.S. straight into the tax authority meeting. The authorities are very cooperative. Our experience has been above all very positive."

"You cannot wait for things to settle and become clear cut. That day may not arrive for a long time."

Lee S. Ting
vice-president and managing director, Asia-Pacific, Hewlett Packard Asia Pacific Ltd.

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*Minister Sun, a leading figure in China's historic shift toward market socialism, passed away suddenly one week after the conference. The concepts and perspectives Minister Sun [illegible]

An Action Plan

THE CHINA BUSINESS CONGRESS was looking for trouble. The Chinese leadership was seeking solutions to the problems confronting their foreign partners. Foreign executives were eager to contribute to development of an "action plan" to improve the business environment. Neither side was shy. "The business environment," one Chinese official pointed out, "is created by all of us, together."

THE 'THREATS AGAINST CHINA' PROBLEM: "There is a tendency to use trade for political pressure," said one Chinese official. "Is it right for one country to use trade as a method of trying to change the structure of a friendly government? This is not an appropriate instrument and it has consistently failed. Trade should not be used as blackmail."

THE CHINA-U.S. RELATIONS PROBLEM: "We need regular dialogue at the very highest level of our two systems. There has not been a genuine exchange of presidential visits between our two countries since the 1980s. We need a solid bilateral relationship, with a shared vision based on shared interests — the interests of common prosperity and world peace. We can be strong together."

THE COST OF DOING BUSINESS: "There is a rapid increase occurring in the cost of labor. It is getting close to the cost elsewhere in Asia. It is far too quick and is causing concern to foreign investors."

REGULATIONS AND RULE CHANGES: "Red tape is stifling. New fees, new policies, new hurdles. One day, profits are limited to 12%, the next day, its 15%. Lenders and banks are saying 'gentlemen, when the rules are clear, we'd like to invest.'"

UNEVEN PLAYING FIELD: "We occasionally still see non-competitive ministry-directed enterprises chosen for certain activities, who expect to get an unusually high price for their work. We don't like that."

FINANCIAL SECTOR REFORM: "There comes a point when integration with the rest of the world dictates that you bring your financial sector up to speed. At that point, if you don't act you can run into serious problems—as Mexico did."

THE SYSTEM BOGS DOWN: "The plans are in place, the orders are promised publicly, but then the system bogs down. Everybody's in charge and we don't get the promised orders processed by the central government."

China's business challenges are now mostly predictable, so correct project design can avoid many problems," says **Dr. Michael Wu**, principal of China turnaround and strategy consultants Wu Associates, of Ridgefield, Conn. "Remember that China remains a planned economy. What you do must fit into the plan. Make certain that the activities you undertake resonate with the government's development goals. Do not try to replicate strategies that worked in other countries. China needs a unique strategy, both for entry and for sustained success."

CONSTRUCTION

"With more Chinese moving to the cities, housing needs are expected to top 25 billion dollars," enthused **Eric Cantor**, senior vice-president, Construction Information Group, The McGraw-Hill Companies. "Meanwhile, the Ministry of Electricity has targeted an incredible 15,000 megawatts of annual development. Power plants, housing, highways, water treatment, buildings of every description — everything is needed on a grand scale. Investment in Shanghai alone could top $100-billion."

Enthusiasm warranted. But **Yao Bing**, Director, Department of Construction Industry of China's Ministry of Construction is under no illusions. "We have serious tasks to fulfill, but we lack funds," says Yao. "We welcome foreign financial institutions and contractor colleagues from abroad."

BUILDING A NEW SYSTEM

"There has been tremendous progress here," says contractor **Richard Erskine**, vice-president and manager of Bechtel China, Inc. "They have moved from a state-controlled system of design and construction to a free market system in just five years. They've lowered their costs. They're getting projects built quicker."

"Construction manufacturing has seen remarkable change. We are now buying Chinese materials: very good quality at very good prices. And among Chinese contractors we are now seeing consistent schedule compliance, consistent improvement in quality in all ranges of major projects, delivering great assets to the owner. It has been a remarkable improvement.

"This is really a good time to invest in China."

The China Business Congress

"It has been exhilarating. The key for us was our ability to meet the authorities."

Mike Sheppard
vice-president and
managing director
Asia-Pacific,
J.D. Edwards World
Solutions Company

"We are moving from a closed state to an open economy. Our links with the world economy tighten daily."

Ge Hongsheng
Minister,
State Council Office
for Special Economic
Zones, People's
Republic of China

The China Business Congress

BUILDING A FINANCIAL SECTOR

"The Chinese securities market is not mature, and neither are the shareholders. That is why you see abnormal phenomena on our exchanges." These words from a senior figure of the China International Trust and Investment Company (CITIC) exemplify the new, open spirit of China's financial leaders.

"Some of our regulations are not well implemented," the official continues, "Our market management mechanism is not perfect. There are still some speculative activities. Performance of our listed companies has not been so satisfactory. But listen to the direct investors. Many have been very successful because they did not come to 'hit-and-run.' It should be the same for institutional investment. If you want to be here for our bright future, you need patience and persistence."

"China's 1995 inflow of foreign investment was second only to the U.S.," says **C.M. (Chung Min) Pang**, senior vice-president and country manager-PRC, Bank of America, "You can get all the capital you want for equity investment in China.

"But," Pang explains, "it is almost impossible for a corporation to get debt financing. Banks fall over backwards to lend to state financial institutions because the monetary authorities are managing debt very tightly. This also wins them very fine pricing.

"Outside the guaranteed environment, however, regulations are not very clear, the legal system is not particularly reliable, and therefore risk is perceived to be excessively high. Very high rates are charged. This forces China to give away benefits they would not have to give away in a more transparent market.

"This is an area where the authorities and we on the foreign side can work together to improve the environment for future investment."

"The authorities and we on the foreign side can work together to improve the environment for future investment."

C.M. Pang
senior vice-president and
country manager–P.R.C.
Bank of America

Political Threats

International politics repeatedly emerged as a complicating factor in business relations, particularly between the U.S. and China.

"Difficulties in our bilateral relationship may start impinging on some of our trade relations. I think that's very regrettable." said **James R. Sasser**, U.S. Ambassador to China. "Our legislative branch exercises more influence over U.S. policy than is the case in most other democratic countries. I think if we can get more of our legislators to visit China we will have a more mature and reasoned approach on their part."

In a gathering at The Great Hall of the People, the same room where he met Zhou Enlai and Mao Zedong in the first phase of U.S.-China rapprochement 25 years ago, **Dr. Henry Kissinger** warned that "it is not wise for the U.S. to announce every six months what penalties we are going to inflict if China does not meet a certain set of conditions developed in Washington. We have no fundamental conflicting interests. China will become a great power and have greater influence. We have to get used to this."

David M. Lampton, President of the National Committee on U.S.-China Relations pointed out that, "Business is the major constituency that understands what's at stake here in China, but business is not enough to carry the day in our pluralistic system.

"If most Americans had even the foggiest idea of the change that has occurred in China they would be cheering. It's not malevolence, it's ignorance. The first thing is simply to educate members of Congress."

"If we can get more of our legislators to visit China we will have a more mature and reasoned approach on their part."

James R. Sasser
U.S. Ambassador to
the People's Republic
of China

TEN YEARS OF SUCCESS FOR BUSINESS WEEK/CHINA

From the left: David G. Ferm, publisher, *Business Week*; Shi Yonghai, former president, China Foreign Economic Relations and Trade Publishing House; John W. Patten, president emeritus, *Business Week*, Stephen Shepard, editor-in-chief, *Business Week*; Sun Shanqing, president, DRC

"People told me, 'It's too early, Jack!' But Hank Greenberg at AIG and Mel Stanford at Boeing advised me to go for it, and we created a Chinese language edition of *Business Week*. I'm proud that The McGraw-Hill Companies have been early participants in the new China."

John W. Patten
President Emeritus, *Business Week*

"*Business Week/China* was the first periodical to be co-published by China and the United States. This successful collaboration with The McGraw-Hill Companies has helped us gain a better concept of the world, and plays an important role in improving China's international, industrial, and commercial cooperation."

Sun Hanchao
former President, China Economic Relations and Trade Publishing House

BusinessWeek
EXECUTIVE PROGRAMS
Beyond news. Intelligence.

RCHITECTURAL RECORD PACIFIC RIM 7/1996

One year from now, sovereignty over Hong Kong will pass back to China fter 99 years of British rule. Although a olitical event, it symbolizes what is appening in architecture too. Asian rchitects trained abroad are eturning to their native countries participate in a building boom at is perhaps the biggest in istory. Power, wealth, and tech- ology are shifting from the West the East. This year's Pacific im Section chronicles some of is change: from country eports that discuss native chitects coming home to an ticle on Suzhou Garden llas, designed by U.S.- ised, Hong Kong-based chitect Nelson Chen. Archi- cts go where the action is.

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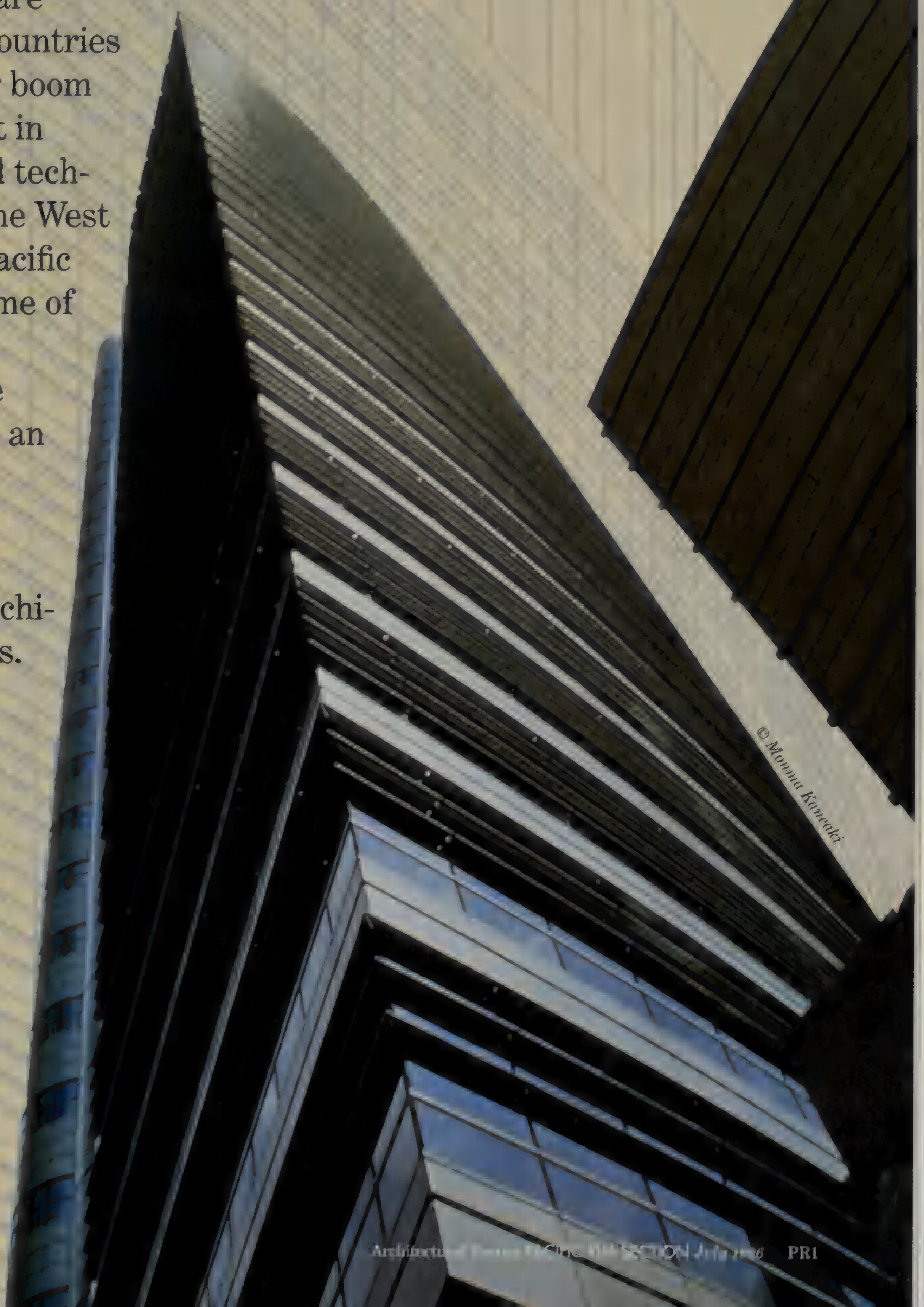

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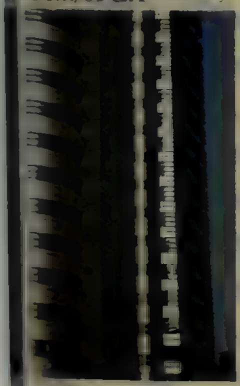

Pelli/CP&A

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PR34

Projects From Around the Region

Beijing American Center
Beijing, China
Rafael Viñoly Architects (N.Y.)
Project type: Office building with retail.
Design concept: A freestanding cube with a central service core and exterior concrete moment frame, the building was designed to be a landmark in the rapidly developing eastern section of Beijing. Open at the top and bottom, each facade lets sunlight hit recreational terraces on upper floors and retail floors below grade.

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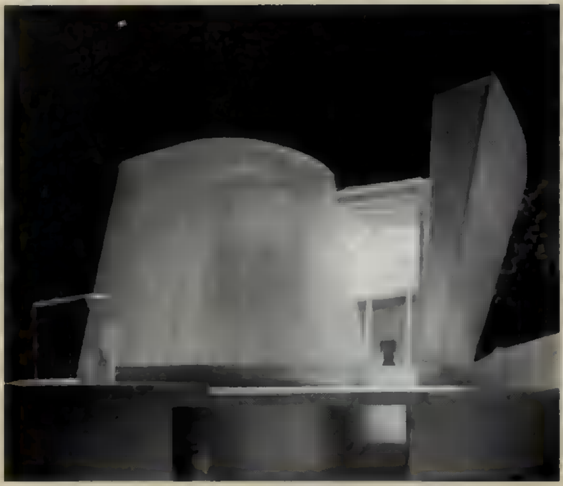
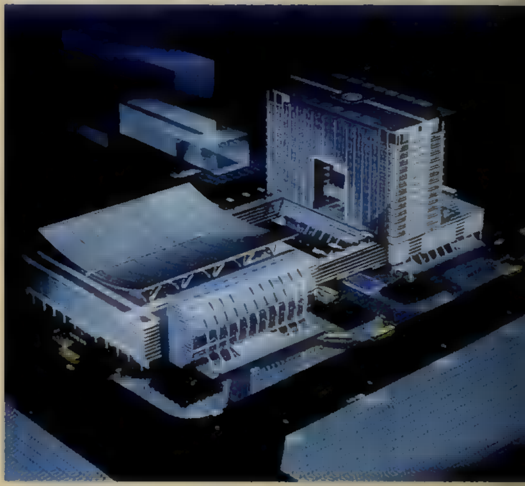


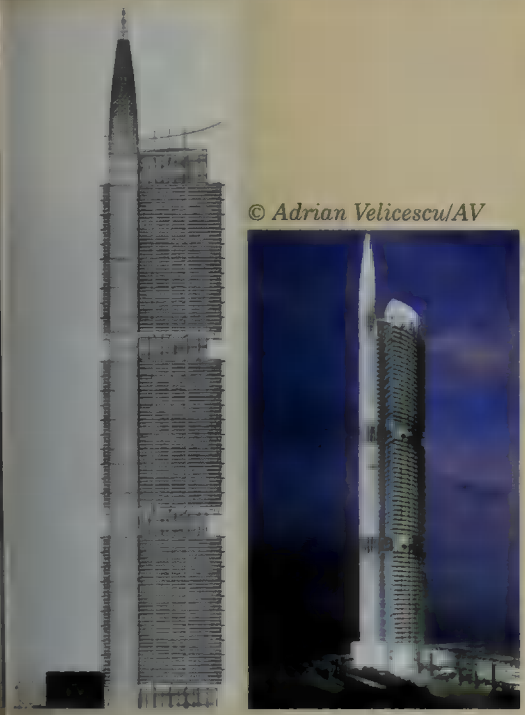
Rodin Museum at Samsung Plaza
Seoul, South Korea
Kohn Pedersen Fox Associates (N.Y.)
Context: One part of a KPF-designed plan to connect the existing Samsung Headquarters with two neighboring buildings, the museum is the culmination of a series of renovated office lobbies and outdoor spaces.
Design concept: Walls of conically curved glass supported by glass structural fins wrap around sculptures by Auguste Rodin and allow views from both inside and out.



Taegu Trade & Product Exhibition Cent
Taegu, South Korea
Leonard Parker Assocs. (Minneapolis)
and Korea Architects (Taegu)
Context: Set in the country's third-largest city, this 1.8-million sq-ft complex will be jus minutes away from an enlarged internation airport and a high-speed rail station when a are completed.
Key components: An 18-story office buildin and a six-level convention center will be cor nected by underpasses and skyways.

AMA Tower
Manila, Philippines
Perkins & Will (Chicago)
Luis & Associates (Manila)
Project type: Office building with retail.
Size: 441,000 sq ft; 37 stories above grade.
Location: In the Mandaluyong area, one of the fastest-growing parts of metro-Manila.
Main components: Thirty-two office floors sit above retail on the first and mezzanine levels, while six levels of parking and mechanical rooms are tucked below grade. An office/residential penthouse tops off the building.

Video Sento
Tokyo, Japan
Klein Dytham Architects (Tokyo)
Program: Bathhouse, health club, café
Concept: A modern version of the traditional Japanese bathhouse or sento, this 2,300 sq ft building is sliced in two by an existing road on a narrow site. The division into halves offers the chance to provide separate facilities for men and women, and to project videos onto the frosted-glass walls on opposite sides of the road.

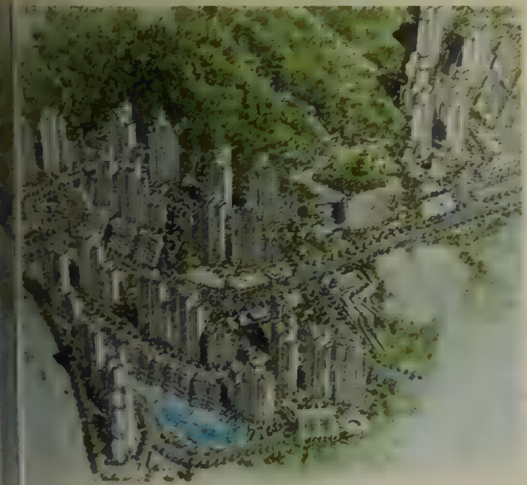


© Adrian Velicescu/AV

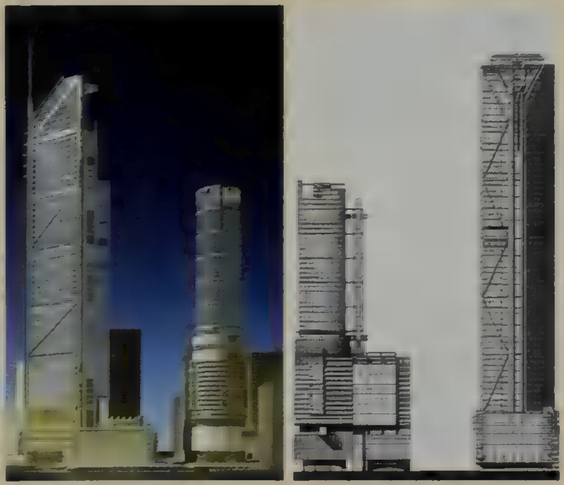
B Corporate Tower
ala Lumpur, Malaysia
KL Associates (Los Angeles)
P Architects (Kuala Lumpur)
e: 65 stories, 1.38 million sq ft.
in components: A 65-story glass-and-inless-steel office tower for K.L.'s electric ipany attached to an 80-story metal-een-clad service tower with shared lities such as auditoria, dining rooms, and ibition hall housed in smaller buildings at base of the towers.

Olympia Plaza
Hong Kong
Wong Tung & Partners (Hong Kong)
Project type: Mixed-use tower with retail, restaurants, and office space.
Main components: A 25-story, 225,000-sq-ft building is divided into three parts: a shopping podium, a seven-story midsection with restaurants and kitchen spaces, and 14 floors of offices. The $53-million building is scheduled to be completed by March 1999 and will include large signage on its lower levels.

Korea Development Bank
Seoul, South Korea
DMJM/Keating (Los Angeles)
Hee-Rim Architects (Seoul)
Location: Prominent site on Jeoudo Square near the National Assembly Building.
Design concept: Two office wings and a heavy cornice at the ninth floor help define the adjacent public square, while an oval-shaped glazed banking hall serves as the visual focus. A nine-story atrium links all the components of the 1-million-sq-ft complex together.



an Dang-gam Housing
an, Korea
Sik Son (Santa Monica and Seoul)
ram: Low- and moderate-income housing, commercial, recreational, and daycare ities being built by the government ing board on a hilly site.
gn concept: "Fingers" of construction ge fingers of the forest, and buildings er on ridgelines rather than in valleys to ce surface erosion. Most buildings face h to catch sunlight.



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MegaWorld Place
Manila, The Philippines
Skidmore, Owings & Merrill (N.Y.)
Location: In the Makati area.
Main components: A 66-story office tower rests on a podium containing parking, food court, and health club. An external superstructure (like the one SOM used for the Hancock Tower in Chicago) maximizes rentable space of office floors. An adjacent 46-story tower includes 19 floors of residences and a 24-story hotel.

Gateway Gardens
Jakarta, Indonesia
Timothy Seow Group (Singapore)
Project type: Condominium and service apartments.
Design concept: Inspired by the split gates or *candi bentar* found in front of Balinese temples, the architects devised modern forms that recall the old buildings' jagged edges and strong vertical lines. The majority of the apartments face north or south to reduce heat and direct light from the sun.

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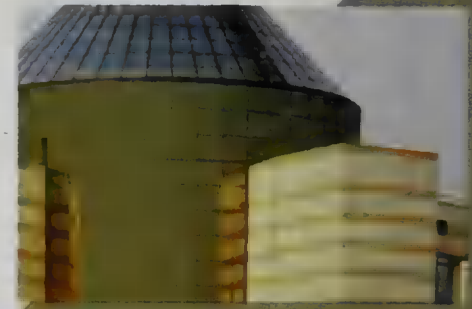

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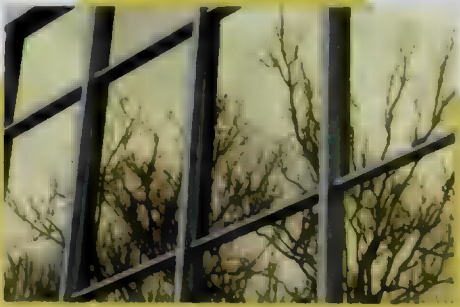

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hina

ncertain Politics Don't Stop Foreign-Trained rchitects From Returning Home

IP, 1995: $739.86 billion
IP growth, 1995 (forecast): 9.9 percent
ojected GNP growth, 1996: 8.5 percent
lation, 1995: 18 percent
pulation: 1.23 billion
urce: Economist Intelligence Unit)
nomic overview: China's economic
wth has slowed from the breakneck
ible-digit rates that characterized the past
ade. Steady growth, however, continues
uinst a background of political uncertainty
l regional disparity in development. China's
P grew 9.9 percent in 1995, down from 11.8
cent in 1994 and 13.4 percent in 1993.
ording to *New China Quarterly*, Prime
nister Li Peng has targeted development of
construction industry, "one of the major
ars" of growth, as a national goal. Inflation,
ch raged above 20 percent two years ago,
single digits this year. This reduction is due
gely to short-term measures, and many
nomists doubt the government's ability to
trol long-term inflation.
itics: With Deng Xiaoping, China's long-
ent paramount leader, in extremely fragile
lth, there is much talk about the power
e of his hand-picked successor, President
ng Zemin. Jiang seems to be solidifying his
l on power, but the true test will come once
ng finally passes away. Recent Chinese
tary exercises near Taiwan, China's claim
overeignty over the Spratly Islands, and
return of Hong Kong in 1997 and Macao in
9 to Chinese sovereignty are all events that
e the potential of unsettling things further.
fting geography: Although major
stal cities such as Shanghai and
ngzhou, and the capital, Beijing, continue
e focal points for development, the
ernment is encouraging development of
nd regions. Many companies, both foreign
domestic, are beginning to take advantage
overnment incentives, and lower land,
r, and operating costs in cities such as
hou and Tianjin, and smaller cities in the
rior. Although special economic zones such
henzhen have boomed in the last decade,
land-acquisition costs—driven by the government's need to subsidize infrastructure development—are making these zones less attractive to foreign investors.

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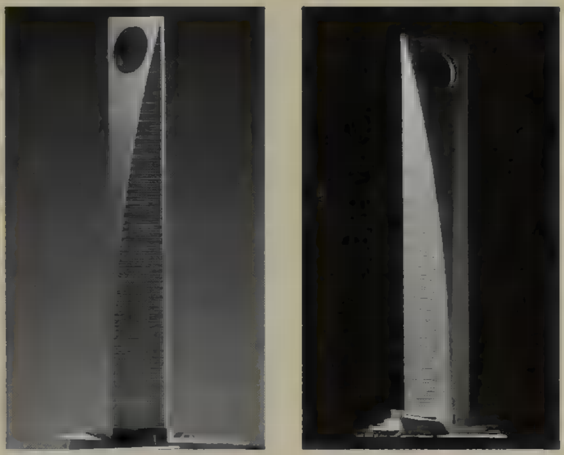

Mori Building in Shanghai, by KPF (above). Ning Bo Cultural Center by Shenzhen Univ. Institute of Architectural Design with Qingyun Ma (top) as project architect.

Better planning: Many Chinese architects feel the government is placing too much emphasis on attention-getting high-rise projects at the expense of more critical needs. These same designers also recognize that the dearth of regional land-use regulations hinders long-term development. Regulations, when they do exist, are often sacrificed for immediate economic benefits. As a result, agricultural land and open space surrounding cities are disappearing rapidly.

Market changes: To slow down its overheated economy, the government began tightening its monetary policy and restricting certain types of development in recent years. In 1995 the government placed a moratorium on luxury hotel projects. Due to the large number of office projects recently completed, there's a glut of office space in many major cities. Developers such as Tokyo-based Mori Building, however, are confident the long-term office market in China, particularly Shanghai, is stable. Mori and a Japanese consortium commissioned Kohn Pedersen Fox to design the Shanghai World Financial Center which will be the world's tallest building at over 1,500 feet high. Construction will begin in 1997.

Coming home: With the government encouraging foreign-trained professionals to come home, architects such as Paul Chen and Henry Wu have returned from the U.S. Chen and Wu, who started Haipo Group Architects, Planners, and Engineers, in Shanghai in 1993, recognize that the market has slowed since they returned. "Developers are more hesitant, many projects are on hold, and land is becoming less readily available," says Chen. "However, the market is still good." Foreign architects are finding more restrictions limiting their participation in projects. A recent Shanghai regulation prohibits foreign architects from producing construction drawings, reserving the work for design institutes. At the same time, local design institutes are catching up with foreign firms, say some Chinese architects. Qingyun Ma, an architect who completed graduate studies in Philadelphia and worked in New York for several years before returning to China, says that during 10 years of joint ventures, Chinese design institutes absorbed a great deal of expertise. According to Ma, these institutes are often able to better anticipate local clients' expectations and deliver projects at a fraction of a foreign architect's fee. As private Chinese architects working with local design institutes, Chen and Wu face some of the same problems as foreign firms—protecting design integrity while meeting requirements set by the program and client. But as Shanghai natives, Chen and Wu understand and operate within the local market as insiders, which few foreigners can do. *Greg Hall in Hong Kong*

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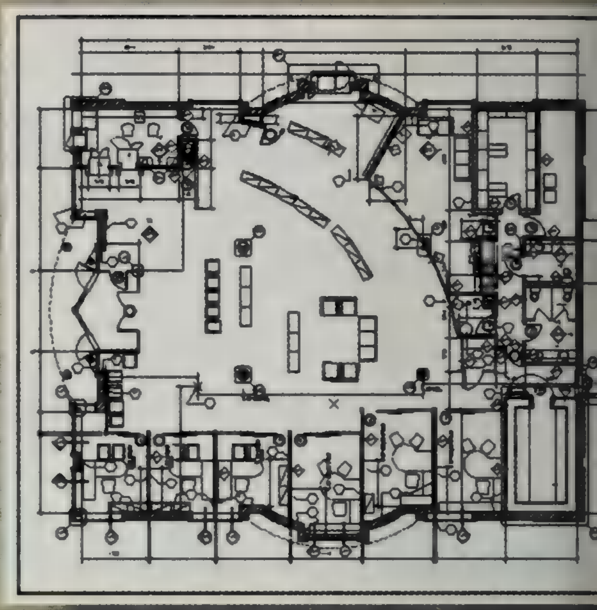

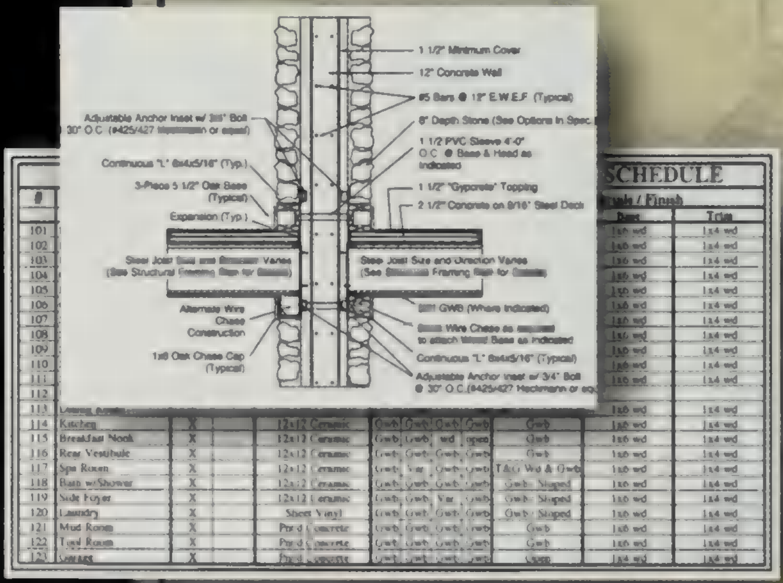

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3-Piece 5 1/2" Oak Base (Typical)
Expansion (Typ.)
Steel Joist Size and Direction Varies
Alternate Wire Chase Construction
1x8 Oak Chase Cap (Typical)
GWB (Where Indicated)
Continuous "L" 6x4x5/16" (Typical)
SCHEDULE
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Breakfast Nook
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Spa Room
Bath w/Shower
Side Foyer
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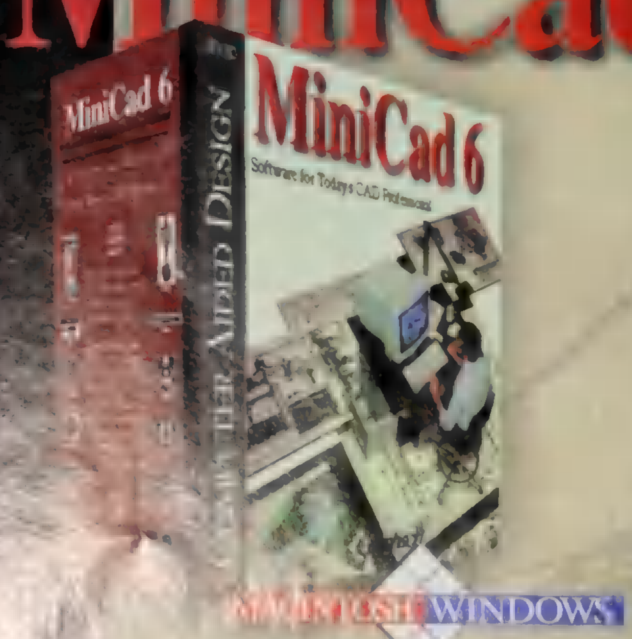

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)eregulation and Infrastructure Investment)rive Economic Transformation

DP, 1995: $173.7 billion
DP growth, 1995: 7.3 percent
rojected GDP, 1996: 7.8 percent
flation, 1995: 9.4 percent
opulation (estimate): 200.8 million
urces: Economist Intelligence Unit, Bank donesia, Central Bureau of Statistics

onomic overview: Having transformed self from an agricultural and mining-based onomy into one in which manufacturing and nstruction provide the prime engines for owth, Indonesia is on the verge of becoming ewly industrialized country. Growth rates excess of 6 percent per year are expected to sustained for at least the next several years d to permit a steady increase in per-capita)P from around $845 in 1994 to about $1,350 1999. This growth in income, combined th the intensive investments being made in man, infrastructural, and industrial velopment, will result in a transformation of economy by the end of the decade.

ng-term prospects: The country's growth ospects beyond 1999 will be strengthened its extensive natural resources—oil, neral, and agricultural commodities—and a owing domestic consumer market of some)-million people. The government's current empts to reduce inequalities in wealth and tribution will also provide a stimulus for g-term growth. In addition, considerable orts are being made to expand transport, nmunication, and power-generating ilities to reduce infrastructural tlenecks; the sector was given a major ost in 1994 with the start of an on-going gram of government deregulation which ened up the economy to foreign investment. s process of economic openness continues ay. For example, the government last year proved $39.9 billion in foreign investment, from $23.7 billion in 1994. A planned move high-technology businesses could also p to transform the economy.

ice construction: An increase in the nber of foreign-invested companies in the ital since deregulation began has ensured n occupancy levels and a dramatic increase ne construction of grade-A buildings in arta in the last five to 10 years. About 1.54 ion square feet of office space was pleted in the first half of last year and ther 8.9 million square feet is currently er construction, more than 90 percent of ch is grade-A.

Retail construction: A strong performance by domestic retailers and growth in consumer-spending power has seen the amount of retail space in Jakarta rise from less than 32.4 million square feet 10 years ago to more than 172.8 million square feet this year. More than 32.4 million square feet of space was opened last year alone. Domestic retailers have flourished as an emerging middle class has adopted shopping as a favorite activity. Growth by foreign retailers, though, continues to be severely restricted by a government ban on direct investment in the sector. Licensing deals are helping to alleviate the problem, but many malls are suffering due to a lack of top-name foreign anchor tenants.

Housing construction: As Indonesia continues its progress toward industrialized-nation status, an increasing percentage of the population is moving from traditional compound housing into apartment blocks and condominiums, a move also fueled by a growing number of expatriates brought in to service foreign-invested companies. Approximately 7,880 multifamily housing units are expected to come on line this year, including 1,106 units delayed from 1995 completion.

Subway: Chronic congestion on Jakarta's roads has finally led to plans for a subway from the city center to the southern shopping and residential area of Blok M. Construction is due to begin in 1997 and the project is expected to cost around $1.3 billion. In the meantime, nearly 10-million vehicle trips are made every day in Jakarta, a city of 9-million people. With public trains and buses overcrowded, a subway has long been overdue.

Spotlight on the "golden triangle": Fifteen years ago only a handful of high-rise buildings marked the central business district, the so-called "golden triangle" bounded by Jalan Sudirman, Jalan Gatot Subroto, and Jalan Rasuna Said. But from 1980 to 1995, total office space in the district grew from 3.73 million square feet to more than 27 million square feet. By 2007 the Jakarta property market will have taken another quantum leap. Currently under construction is an ambitious plan to develop a fully integrated superblock project in the heart of the Indonesian metropolis. Called the Sudirman Central Business District (SCBD), the scheme will incorporate a swath of modern offices, hotels, and apartment towers designed to transform the center of the city. The $4-billion SCBD project—brainchild of PT Danayasa Arthatama, a wholly owned subsidiary of the publicly listed Jakarta International Hotels and Development—will provide 27 million square feet of new space, enough room for 200,000 people and 20,000 cars. Launched in September 1992, eight of the 24 lots on the 111-acre site have been committed, and the land is already marked by some impressive buildings: the brand new Jakarta Financial Tower and neighboring Stock Exchange Building (above), designed by Brennan Beer Gorman Architects of New York, and the Bank Artha Graha Tower.

© Justin Van Soest

Jakarta Stock Exchange, by Brennan Beer Gorman, rises in a new business district.

More to come: Some of the other buildings scheduled to come on line in this city-within-a-city will include hotels operated by Conrad Hotels and Omni Marco Polo. SCBD will also include a hospital, a fire station, and a flood-protection scheme, plus a sophisticated traffic-management system. "This area is the future financial heart of the city," claims Djohan Sutanto, vice president and director of the company behind the development.
Nigel Simmonds in Bali

Taiwan

Sluggish Economy and Relations with China Cloud Forecasts

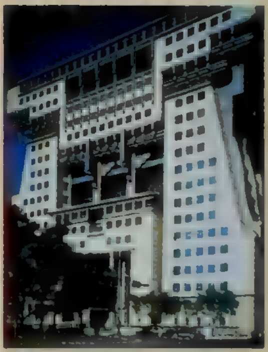
GDP, 1995: $260.7 billion
GDP growth, 1995: 7.58 percent
Projected GDP growth, 1996: 5.5 percent
Inflation, 1995: 3.68 percent
Population: 21.3 million

Economic overview: While the government has taken measures to curb a further slump in the construction industry, economic analysts remain skeptical about forecasts for a quick recovery. The economy is currently sluggish due to a reduction in the growth rate of private consumption. A 5.24 percent increase in consumption in 1995 was the smallest since 1987. Factors such as a decline in real wages, rising unemployment, and a 27 percent dive in the stock market last year have all led to the present reduction in speculative property trading. Non-economic factors—most notably deteriorating ties with mainland China—have also affected Taiwan's economy. On a brighter note, the government is liberalizing the economy in an effort to enter the World Trade Organization. The ruling Kuomintang party's goal is to transform the island into a regional operations center for Southeast Asia—a goal that will involve building manufacturing, shipping, financial, and transportation hubs.

Building sector: Construction should pick up as more foreign companies use Taiwan as a springboard to the China market. The housing and office markets are weak, but retail construction may pick up soon. A glut of housing led to a 27 percent drop in permits for new residential units in 1995, after decreases of 13 percent in 1994 and 14 percent in 1993.

Architecture in transition: "Taiwan is chaotic, full of energy, but not really organized," says architect Chin Pai, a principal at Haigo Shen & Associate. "In architecture too, anything goes." But Taiwan is in a transitional period, Pai explains, with local architects working with foreign firms and benefiting from a transfer of technology. Since the last real-estate bubble burst in 1990, competition among architects has become fierce and many firms have expanded their scope of services to bring in new work.

Courting controversy: Architect C.Y. Lee has designed some of the most prominent—and controversial—buildings in Taiwan. His firm's blending of East and West has resulted in buildings that defy categorization and invite debate. His Hung Kuo Building in Taipei, for example, is a 17-story structure with sloping terraced sides, a "sky lounge" halfway up, a a style all its own. Some architects have call the building a "landmark," while others hav criticized it for not blending into the urban fabric. Lee says its planning and building methods are Western, while the East inspir its angled form and use of light and space. "The Chinese have a saying, 'Light gives fo life,'" says Lee. The firm is working on the T Building in Kaoshiung, which will be the tallest building in Taiwan when completed i 1998. Described by Lee as a "Super Column the 85-story building will meet the sky with lotus-flower top. To his critics, Lee says the building was not designed to conform but rather to set a trend. *Eva Liu in Taipei*



Hung Kuo Buildi in Taipei, designe by C.Y. Lee, has elicited strong opi ions from archite and the public.

South Korea

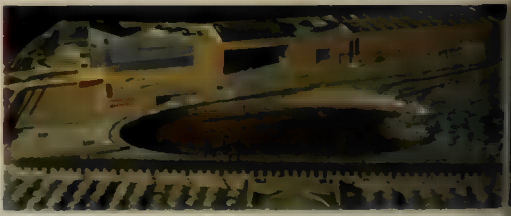
Foreign Competition Sparks Debate

GDP, 1995: $456 billion
GDP growth, 1995: 9.0 percent
Projected GDP growth, 1996: 7.5 percent
Inflation, 1995: 4.7 percent
Population: 44.6 million

Economic overview: As expected, 1995 marked a turning point for the Korean economy, combining low inflation with strong markets both domestically and internationally. After three years of falling prices, the stock market gained almost 30 percent. A downturn in corporations' capital investment and a growing import-debt ratio, however, indicate less prosperous times ahead.

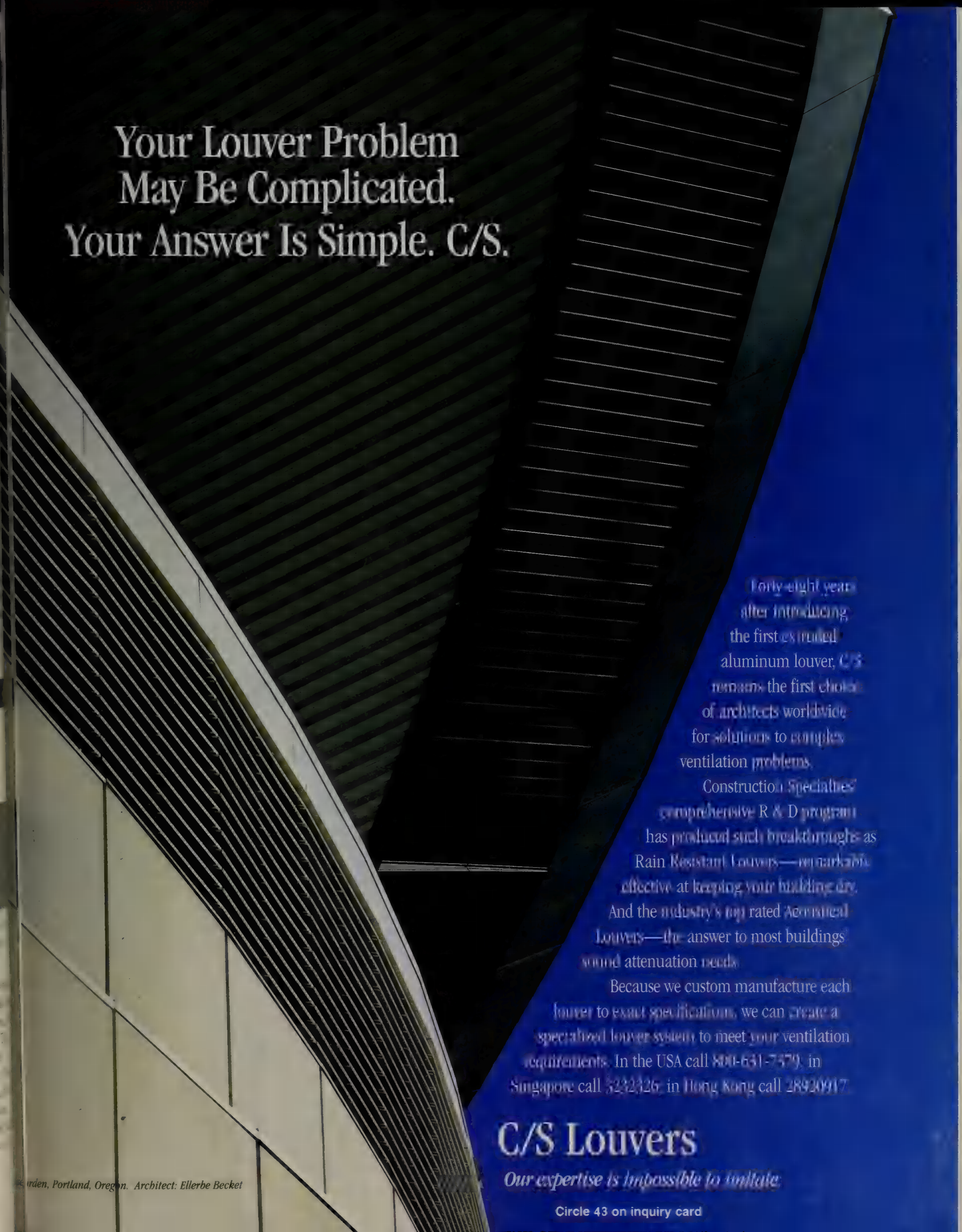
Real-estate markets: Having been burnt by overbuilding in previous years (especially in the residential sector), developers are becoming more prudent. The bankruptcy of a few large construction companies reverberated throughout the industry. As a result companies are diversifying—adding commercial, leisure, and mixed-use complexes to their development portfolios. Major capital projects, including high-speed rail stations and international airports, should trigger another period of big development projects.

Global profession: The buzzword for 1995 was *segyehwa*—Korean for globalization. Foreign architects—including Norman Foster, Richard Rogers, and Frank Gehry—have recently been awarded some major commissions. Competition from foreign architects, though, has provoked debate. Most Korean practitioners support the open-door policy, expecting it to be a catalyst for advancing the field. Yet the argument that "blind reliance on foreign experts by private corporations as well as by the public sector is to be guarded against" was made by a leading journalist, Homi Yoon, and caused quite a stir.



Winning design for the National Museu by JungLim Architects of Korea (above), out 341 entries from 59 countries.

Spotlight on competitions: The hottest topic of the year was the international desi competition for the National Museum, whi drew 341 entries from 59 countries. The winning design came from JungLim Architects, one of Korea's top firms. Octob the deadline for entries to an international competition for a rail station in Pusan, sponsored by the Korea High-Speed Rail Construction Authority. *Jinai Kim in Seo*



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rden, Portland, Oregon. Architect: Ellerbe Becket

Singapore

Housing Remains Strong In Both Private and Public Sectors

GDP, 1995: $62.7 billion
GDP growth, 1995: 8.9 percent
Projected GDP growth, 1996: 7-8 percent
Inflation, 1995: 1.7 percent
Population: 2.98 million

Economic overview: After two years of double-digit growth, the Singapore economy expanded by 8.9 percent in 1995. Growth was led by the manufacturing sector—particularly the electronics industry. Interest-rate cuts in the U.S. and the return of foreign investors to the stock market should benefit the Singapore economy this year, although the country is likely to see slower growth due to continued pressure on costs and competitiveness.

Construction: Growth in the construction sector slowed considerably to 8.5 percent in 1995, down from 17 percent in 1994. Reasons cited by the Ministry of Trade and Industry include shortages of some building materials and completion of several major construction projects in 1995. In terms of demand, the building industry experienced a record year in 1995, with a total of $11 billion worth of contracts awarded to both the public and private sectors—a 30 percent increase over the value of contracts awarded in 1994. Singapore's Construction Industry Development Board estimates $10 billion worth of projects will be awarded in 1996.

Private housing: Residential construction is currently one of Singapore's strongest industries. Contracts awarded rose 13 percent in 1995 to $2.5 billion, while the total stock of private residential properties stood at 127,187 units in the third quarter of the year. Another 81,062 units are expected to come on line during the next eight years—a completion rate that is nearly 2.5 times the historical rate.

Public housing: Singapore is unusual in that 87 percent of its population lives in public housing sold at subsidized rates by the Housing and Development Board (HDP). Contracts awarded for HDB apartments in 1995 rose 34 percent to $2.9 billion, a record high. The record was partly due to a drive to upgrade existing HDB buildings, with more than $356 million awarded for this purpose.

Office buildings: Contracts awarded for office construction fell by 14 percent in 1995 to $786 million, reflecting the cautious mood of developers. One million sq ft of new office space came on-line in 1995, bringing total stock to 15.5 million sq ft. Nonetheless, demand should remain strong with occupa levels projected at 93 percent through 199

Public sector and industrial: Construc of public-sector office buildings was down the second year, with the value of contract awarded in 1995 decreasing 35 percent to million. Other institutional construction, however, grew 30 percent, with $1.1 billior worth of contracts awarded. Strong dema for industrial properties pushed up contra in this sector 38 percent to $330 million.

Spotlight on a second downtown: A k part of the government's Revised 1991 Concept Plan calls for the development of second downtown on reclaimed land in the Marina South area. Goh Chong Chia, prin of TSP Architects & Planners and preside the Singapore Institute of Architects, wan see the plan reworked, with more involven from the private sector. "The developmen could be more sustainable and ecological," states Goh. He envisions a design that rel to Singapore's tropical climate and multi-cultural heritage. "We have an opportunit create a totally new city on virgin land. Yo really start from scratch and the possibili are tremendous." *Carol Clark in Singapo*

Philippines

Political Stability and Economic Reform Provide Platform for Major Developments

GDP, 1995: $76.6 billion
GDP growth, 1995: 4.8 percent
Projected GDP growth, 1996: 6.5 percent
Inflation, 1995: 8.1 percent
Population: 67 million

Economic overview: The Philippines continues to make up for lost time, amid new optimism that growth will be sustained. Needed reforms in the foreign investment and tariff systems are going forward, opening the economy to more international competition. Foreign investment shows up mostly clearly in accelerated growth of manufactured exports and in a building boom that is transforming Manila's skyline.

Politics: The Philippines has a noisy democracy that sometimes frustrates even the Filipinos. But beneath the tumultuous surface, the political situation under President Fidel Ramos is more stable than it has been in over a decade. Economist Bernardo Villegas of the University of Asia and the Pacific says that with increased political stability, continuity in economic management is likely, regardless of the outcome of presidential elections in 1998.

Real estate: Manila property markets are strong. But Monique Pronove of Jones Lang Wootton says the office market in the central Makati district may become saturated as 21 buildings (more than 6.48 million sq ft) are completed between 1996 and 1999. In addition, 2.86 million sq ft of new retail space are due for release in 1996. Demand has been increasing for mass-market housing, as Filipinos upgrade their standards of living.

Local light: One of the Philippines' most celebrated architects is Francisco T. Mañosa, whose Modernist work is rooted in Filipino vernacular and involves innovative use of local materials. His "Coconut Palace," for example, is a whimsical residence supported by 12 inverted coconut trunks and finished wit coconut-fiber carpets and coco-wood par

Foreign players: American architects associated with local firms and are worki Manila's four largest urban developmen 38.5-acre Rockwell Center (by SOM and Palafox & Associates), the 603-acre Filin Corporate City (by the SWA Group and Ildefonso P. Santos & Associates), the 2,4 acre Boulevard 2000 (by HOK Internati and PROS), and Fort Bonifacio (by HOK PROS and W.V. Coscolluela and Associat Major infrastructure initiatives for road a light/mass railway system are schedul be completed by the year 2000. Manila's mayor, Alfredo S. Lim, says he would lik "make metro Manila the trading center Asia," a sign the city has set its sights hi *Zofia Rybkowski and John Seel in Hong*

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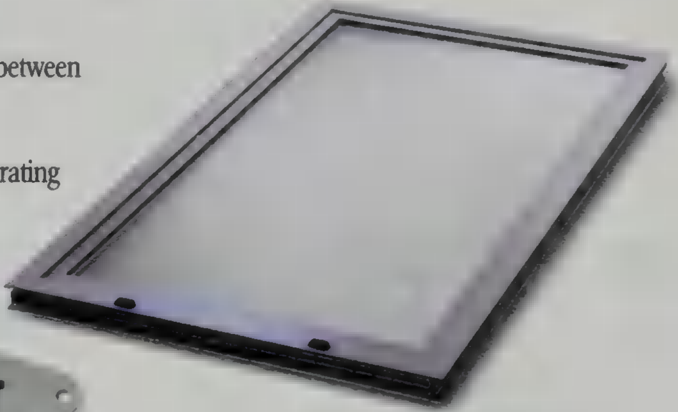

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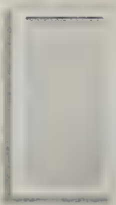

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ligh-Rise-Office and Infrastructure 'rojects Fuel Building Boom

P, 1995: $80 billion
P growth, 1995: 9.5 percent
ojected GDP growth, 1996: 8.3 percent
lation, 1995: 3.5 percent (estimate)
pulation, 1995: 20.1 million (estimate)

nomic overview: The Malaysian vernment's recently unveiled five-year plan 1996 to 2000 anticipates annual economic wth of 8 percent during this period. Prime nister Mahathir Mohamad has said his ernment will allocate $64.2 billion for elopment over the next five years, a figure al to 11.5 percent of the GNP. During the vious five-year period, the government nt 14.8 percent on development. The lower ire in the new plan reflects the government's determination to reduce the size and e of the public sector.

nomic diversification: The country's nomy, which used to be commodity-based he 1980s, is now more diversified with nufacturing playing a key role. nufacturing is expected to grow at a rate of percent annually in the next five years to account for 37.5 percent of the GDP in 0, up from 33.1 percent in 1995. The ernment's long-stated vision is to achieve veloped nation" status by the year 2020.

iding bottlenecks: The latest five-year n recommends that infrastructure be eloped ahead of demand to avoid the lenecks that have frustrated Malaysians ng the past decade. In the next five years, ajor projects will be privatized, including s, hospitals, new expressways, and ang's new Light Rail Transit system.

ching for the skies: On the back of nine inuous years of high economic growth, aysia is experiencing a major construction n. Kuala Lumpur, the capital, is the focus uch of this activity. The 100-acre Kuala pur City Center (KLCC) project on the ier site of the Selangor Turf Club begins me on line this year, with the twin nas Towers—designed by U.S. architect r Pelli—due to open at the end of 1996. At feet, the towers are the world's tallest ings and, with a price tag of $800 million, didn't come cheap. The towers, whose plans are shaped like eight-pointed nic stars, will hold 4.14 million square feet w office space.

e boom continues: Ten other major projects are set to open this year in K.L., ting in another 2.31 million square feet hitting the market. An additional 3.53 million square feet are projected for 1997. A more modestly scaled new tower is the 27-story Central Plaza, designed by the Malaysian firm T.R. Hamzah & Yeang. With its cascading terraces, planter boxes, and sunshade devices, the building continues architect Ken Yeang's exploration of adapting tall buildings to tropical climates. The massive supply of office space, though, is an area of concern and has led the authorities to put on hold applications for 20 more towers as they grapple with the city's chronic traffic problems.

A new capital: The relocation of all federal government departments presently located in K.L. to a new administrative capital called Putrajaya will go ahead in 1998 and construction of the $7.9-billion project is now underway. Infrastructure and groundwork are progressing and the first buildings should be completed in August 1997. Planned as a "garden city" with green space integrated with its design, Putrajaya will eventually accommodate an estimated population of 570,000, including some 76,000 public-sector employees and 59,000 private-sector workers with jobs in the new town. Moving the government bureaucracy out of congested K.L. should ease the burden on existing infrastructure.

K.L. in transit: "No one anticipated the scale of growth that Kuala Lumpur is now experiencing," says the former president of the Malaysian Institute of Architects, Hj Esa Bin Hj Mohamed. To remedy this situation, massive investment is being channeled into infrastructure in the capital. The bulk of K.L.'s integrated transportation system should be fully operational by 1998, in time for the prestigious Commonwealth Games. Major components of the new public transit network are: 1. the Light Rapid Transit (LRT) system, which will be a metropolitan commuter-train service connecting the city center with the densely populated suburbs and which will have its first phase (comprising two lines and 20 stations) starting up later this year; 2. the KTM Komutor, a double-track commuter train system that is already operational and that covers 153 kilometers from Rawang to Seremban via K.L. and from Sentul to Port Klang; 3. the People-Mover Rapid Transit (PRT) system comprising 16 kilometers of elevated rail service in the downtown area of K.L.; and 4. the Express Rail Link (ERL), a train service that will connect K.L.'s central station with the new Putrajaya Administrative Center and the new K.L. International Airport (KLIA) now under construction [RECORD, July 1995, Pacific Rim pages 34-37]. Designed by Kisho Kurokawa Associates in association with Akitek Jururancang (Malaysia) Sdn Bhd, KLIA is a giant $5.14-billion project located south of K.L. at Sepang. Plans call for the first phase of the project to handle 25 million passengers per year and be completed by early 1998.

© Courtesy T.R. Hamzah and Yeang

Central Plaza, by T.R. Hamzah & Yeang, is one of many new office buildings in K.L.

Southern renaissance: Another high-growth region is the southern state of Johor, which is feeding off rising land and labor costs in neighboring Singapore. A new bridge under construction will complement the existing causeway linking Johor to Singapore and add impetus to the industrialization of the Malaysian state.

Foreign competition: As in most Asian nations, architects in Malaysia are wary of the influx of foreign design consultants. "How can we get the best out of them?" asks Parid Wardi Sudin, dean of the faculty of built environment at the Universiti Teknologi Malaysia in Johor, implying that not all designs by foreign architects have been successful. In assessing any design, Hj Esa notes, one should ask, "Is it appropriate? Is it sensitive to promoting local industries and local talent?"

Return voyages: One result of the current building boom is a shortage of architects, notes Parid Wadir. Another consequence is the return of a significant number of young Malaysian architects from abroad. New practices set up by these returning architects—including Designmatrix, Architron Design Consultants, ZLG Design, and DNA Consultants—are beginning to make waves. *Robert Powell in Singapore*

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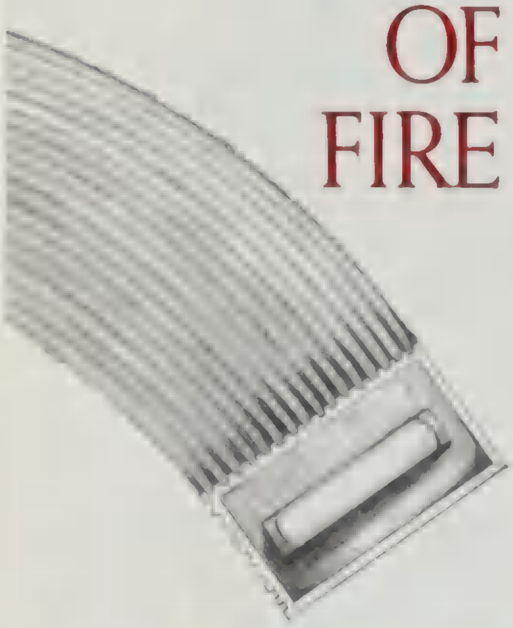

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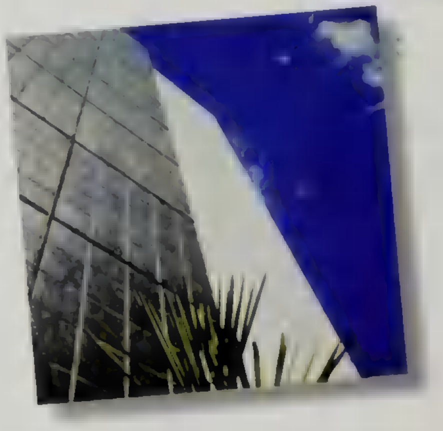

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Australia/New Zealand

Bumpy Road to Economic Recovery Includes Some Highs

GDP, 1995: $332 billion (Australia); $59.5 billion (New Zealand)
GDP growth, 1995: 4.8 percent (Australia); 6 percent (NZ)
Projected GDP growth, 1996: 3.5 percent (Australia); 2.6 percent (NZ)
Inflation: 4 percent (Australia, 1996); 2.9 percent (NZ, 1995)
Population: 18.1 million (Australia); 3.59 million (NZ)

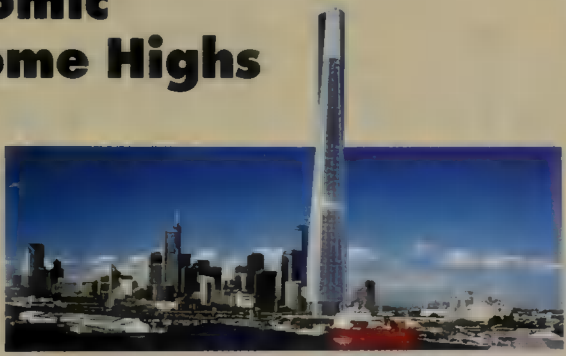
Economic overview (Australia): The Australian economy's slow climb out of the recent recession is apparently leveling off, with GDP growth dropping from 4.8 percent last year to 3.5 percent projected for this year. Inflation should also drop, as the 4 percent rate so far in 1996 subsides to a projected 3 percent in 1997. Unemployment has begun to inch down from 8.9 percent in 1995 to 8.5 percent in the first quarter of 1996, too late, though, to stave off a landslide swing to the conservative Liberal-National Coalition in national elections in March. After 13 years in power, the Labor Party was swept out of office.

Economic overview (NZ): New Zealand is going through its own post-recessionary fluctuations, with its robust 6.1 percent jump in GDP last year expected to be followed by a more modest 2.6 percent increase this year. Inflation, though, is stable at just below 3 percent, as is unemployment at 6.1 percent.

Money matters: The currencies of both countries have made gradual gains against the U.S. dollar and the Japanese yen. After some hiccups, foreign investment in the two countries is increasing, with money coming increasingly from Southeast Asia. Foreign investors are shifting from real estate to commercial services such as waste treatment, transport systems, and communications.

Construction: Many business leaders see regional building booms on the horizon for both countries. In Melbourne alone, $6 billion worth of building starts are set for this year and large construction companies there anticipate the need to bring in labor from less active states. In New Zealand, non-residential building starts were up 22 percent in 1995.

The architectural profession: In general, architects are cautiously optimistic, although the profession seems to be getting squeezed from a couple of different sides. The threat of project managers muscling in on the traditional role of architects has receded, but competition from other professionals remain.



DCM's design for Melbourne's Grollo tower was a winner with the public.

The Association of Professional Engineers, Scientists and Managers, which has been successful in unionizing engineers in Australia, is trying to establish a new union for architectural employees; managers of architectural firms are considering how to respond.

Olympic competition: Planning for the 2000 Summer Olympics in Sydney has already begun, with the Australian-British consortium Bligh Lobb winning the bid to design the main stadium and the New South Wales state government announcing plans to oversee eight redevelopment projects on the shores of the river leading from the city to the Olympic site. The governmental Olympic Co-ordination Authority is currently assessing bids from developers to build the Olympic Village, which will occupy a former military site and eventually become a suburb of some 10,000 residents. The office of the Government Architect will review all Olympic projects.

High-rise competition: The biggest controversy to spill over to the general press has been the proposal by developer Bruno Grollo to put up the world's tallest building in Melbourne. Grollo has lured two prominent Australian architects—Sydney-based Harry Seidler and the Melbourne firm of Denton Corker Marshall (DCM)— to compete in designing the tower, which will be built over old rail yards in a proposed urban park on an extension to Collins Street, Melbourne's premier avenue. Seidler's design is a tectonic structure of triangulated sections rising 1,650 feet (120 stories) and glazed to appear gold at dusk [RECORD, July 1995, Pacific Rim page 24]. DCM conceived the building as a slender, four-sided obelisk 2,250 feet tall (137 stories), set on four sets of twin corner columns and a central core (above). The developer seems to have enjoyed all the publicity and exhibited models and drawings by the two competing architects to prompt reactions from the public. Eighty percent of the visitors polled at the exhibit preferred the DCM design. *Ian Perlman and Graham Jahn in Sydney*

Vietnam

Not Yet A Tiger, But Ready to Grow

GDP, 1995: $56.3 billion
GDP growth, 1995: 9.5 percent
Projected GDP growth, 1996: 8.8 percent
Inflation, 1995: 12.7 percent
Population: 74 million
Source: DRI/McGraw-Hill

Economic overview: After a couple of years of investment euphoria, a more realistic view of Vietnam's potential is setting in. Although $19 billion in foreign investment has been pledged in 1,400 projects, only about $6 billion has entered the country so far. According to DRI/McGraw-Hill, "What was once viewed as Asia's next 'Tiger' economy is losing some of its roar, as party leaders stress the importance of keeping the socialist political agenda." But GDP should keep growing at close to 9 percent a year until 2000 and the country's fiscal deficit has been reduced from 10.4 percent of GDP in 1989 to 2.6 percent in 1994. As a result, inflation has been mostly tamed, going from triple digits in 1988 to a low of 5.3 percent in 1993. Since then, food prices and shortages of construction materials pushed inflation to 14.4 percent in 1994 and 12.7 percent last year. The rate should remain around 14 percent in 1996.

Politics as usual: Vietnam's reintegration with the world economy took major strides last year as it joined the Association of Southeast Asian Nations and established diplomatic relations with the U.S. The nation's leaders continue to promote the economic reform process begun in 1986 known as *doi moi*, but a delicate balance between reformers and socialist ideologues could be upset at the Eighth Communist Party Congress this summer. Bureaucratic red tape, archaic tax and legal systems, and economic inequalities are further obstacles to foreign investment. In addition, the nation's badly deteriorated infrastructure must be greatly improved.

Planning ahead: There is a recognition among Vietnamese architects and planning authorities that the country's urban areas must develop in a more responsible manner than did cities in other parts of Asia, says John Kriken, a partner at Skidmore Owings & Merrill/San Francisco and the chief planner for the giant Saigon South project underway outside Ho Chi Minh City. Although it's hard for a poor country to say no to developers, the nation's architectural community is aware of the need to preserve the historic hearts of Hanoi, Ho Chi Minh City, and Da Nang. *Clifford A. Pearson in New York*

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uilding Boom Clouded By versupply and Traffic Congestion

P, 1995: $164 billion
P growth, 1995: 8.6 percent
jected GDP growth, 1996: 8-8.5 p cent
ation, 1995: 5.7 percent
ulation: 59.1 million

nomic overview: Thailand's economy is c tinuing the roughly 8 percent annual g wth that it has sustained for the past s eral years, and the indicators are that the r will be maintained for the immediate fu re. Last year's performance was marred b nflation rising to 5.7 percent, a figure b ned largely on domestic agricultural prices ir easing due to disastrous nationwide fl ding in 1995, as well as on worldwide tr ds. Most economists believe inflation will de ine in 1996. Public investment in the cu ent year is expected to rise from 35.5 pe ent of total government expenditures to 38 percent, with the main projects being the co struction of a new international airport ai six-lane highways.

C struction activity: From appearances al e, construction seems to be booming, and B gkok's skyline continues to change almost be re one's eyes. In reality, the situation is le buoyant than in the past. Last year, de lopers had to cope with the rising cost of bu ling materials and higher interest rates, wh e the property market struggled with ov supply. Little is likely to change in the sh t term.

H sing and office construction: In the ho ing sector, unoccupied units totaled 30)38, or 14.5 percent of the total, compared to .8 percent in 1994. About 1.7 million sq re feet of office space in Bangkok was ou in the first half of 1995. A further 42.5 mi on square feet is scheduled to enter the ma ket before the year 2000, with 64 percent of at currently under construction.

Bu ding trends: There is growing use of ad nced building technologies, in particular pr bricated or pre-cast components for ho ing projects. Such technology is im rtant to developers who need to reduce cos in a competitive market. At the same tim home buyers are becoming more co rned about the construction quality and du bility of their homes, factors which in Asia ha traditionally not been as important as in he Vest.

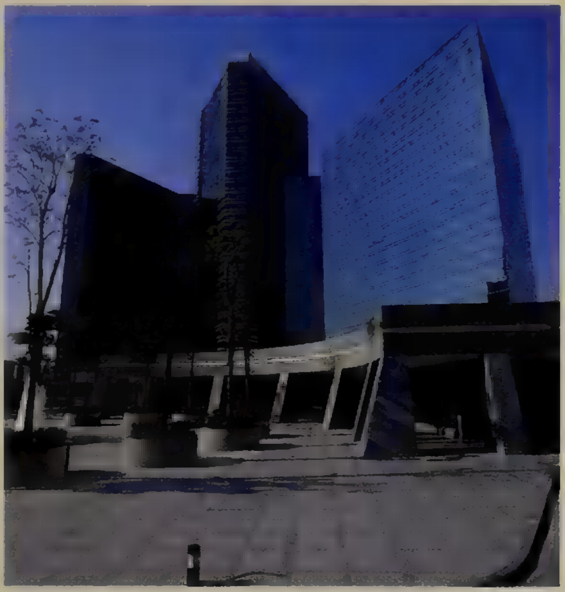
ironmental sensibilities: Another tre is toward "green" developments, for both housing and commercial buildings. At the forefront is Plan Estate and sister company Plan Architects, which have to date developed three housing estates designed according to environmental principles. "We make use of natural surroundings and create designs which make the project as energy efficient as possible," project manager Trirat Jarutach told a local property magazine. "Through the use of designs with high roofs and raised floors [traditional Thai elements], the houses are well ventilated" and therefore cooler. Trirat added that "We have our own target group made up of those who are tired of city living and want to be in touch with nature. We will stick to this concept with all our projects in the future."

Cultural sensitivities: The main topic of debate among architects these days is infusing Thai cultural identity into modern buildings. Houses that employ traditional devices such as steeply pitched roofs and proper sun shading partly address the issue, but the matter becomes more complex with high-rise properties. There is much talk, but little consensus. And some of the dialog is negative. For example, in a recent competition run by the Association of Siamese Architects, the judges dismissed buildings with glass curtain walls, apparently because they were considered inappropriate to the culture and climate. This was despite the fact that two entries were impressive headquarters buildings of major banks.

Following the West: Chaiwat Wachpanich, a principal of Plan Architects, says Thais must change the way they approach the built environment. "Thai culture takes the easy way. It is our responsibility to look at architecture more seriously," says Chaiwat. Certainly, much recent building has been a pastiche of what was being done in the West five to 10 years ago which, ironically, many Thais see as new and therefore desirable regardless of culture, climate, or other considerations.

User-friendly design: Architect Ongard Satrabhahndu, who studied at Cornell and Yale and worked in the U.S. in the 1960s before returning to Thailand, says architects have to do a better job of responding to the needs of users and the public. Speaking of high rises and the needs of pedestrians, he states, "At least we could make the visible part more friendly. Everyone talks about the skyline, but I think the crucial part is the first eight stories; that's what people see close up."

Siam Commercial Bank complex (below), designed by Robert G. Boughey, is set in the fast-growing suburbs north of Bangkok.



Adopted son: After more than 20 years in Thailand, Bangkok-based American architect Robert G. Boughey is now a fixture on the local architectural scene. His latest project, the Siam Commercial Bank (SCB) complex, combines office, retail, and public space into a lively urban place. Modern in structure and style, the curtain-wall buildings at SCB—including 37-story and 23-story office towers—subtley allude to Thai architecture by etching a jagged roofscape against the sky, says Boughey. And by providing open space around the buildings and a huge atrium inside, the complex shows how mixed-use developments can contribute to the public realm. Having lived in Thailand for so long, Boughey has seen the country's architecture become increasingly sophisticated. Gone are the days when "getting an auspicious number of steps into a building, for example," was part of the architect's job, says Boughey. "The outlook is much more international now."

Continual change: What Boughey finds challenging about Bangkok is the continual change. "Thai architecture has out-grown its original context," he says. The scale of projects keeps getting bigger and bigger. But with no solution to Bangkok's infamous traffic chaos in sight, the trend for major building development to move away from congested downtown areas is likely to accelerate. Much new development is occurring in the suburban corridor north of Bangkok—an area that now has 27 percent of the metropolitan area's total office space. *John Hoskin in Bangkok*

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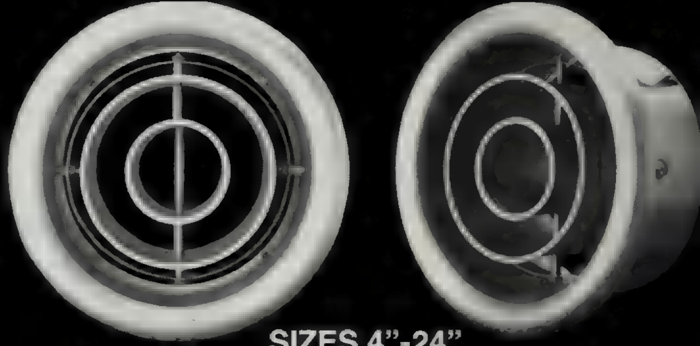

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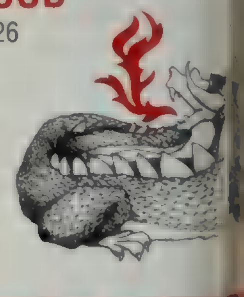

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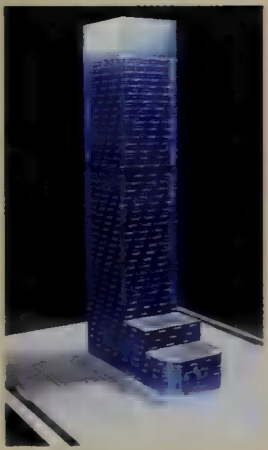
he Chinese Are Coming! The Chinese Are Coming! Vill It Make Any Difference?

P, 1995: $143 billion
P growth, 1995: 4.6 percent
ojected GDP growth, 1996: 5.1 percent
flation, 1995: 6.7 percent
pulation: 6.1 million

onomic overview: After suffering a wdown in 1995, Hong Kong's economy is owing signs of recovery. Last year's growth e of 4.6 percent (a five-year low) is likely to e to 5.1 percent this year, driven by onger private consumption and healthier operty markets. Hong Kong's prosperity l also benefit from continued growth in ina, where monetary and investment licies are loosening up after the govern- ent's success in controlling inflation. With e 1997 transfer of sovereignty approaching, ng Kong is set to reclaim its role as China's gest port and most important financial nter. The city's geographical advantages d its management know-how are likely to ep economic growth at about 5 percent ough the turn of the century.

litics as usual: With the transition to inese rule set for July 1, 1997, handover ues dominate Hong Kong's political scene. putes still crop up between British and inese authorities and the potential for a naging loss of confidence cannot be ruled . However, the power transfer is likely to e only minimal impact on the territory's nomy and property markets. Most key as of Sino-British disagreement, such as ding for the new $20-billion airport and the ucture of the court of final appeal, have eady been resolved, and the remaining erences are increasingly on symbolic ues such as the nature of the handover emonies. China has made it clear that it will ke certain changes after it takes over, such eplacing the legislative council formed through electoral changes that Beijing did not recognize. But these moves have been expected for so long that the business community is prepared for them. In most areas, China has emphasized its desire for continuity in Hong Kong's affairs.



ce building ht) is one of Rem lhaas' first pro- s in Hong Kong.

Architects and 1997: Dr. Raymond Wu of the Special Administrative Region Preparatory Committee (Professional Sector) says, "There are both threats and opportunities in Hong Kong and China." At the present time, many Hong Kong architecture firms rely on China projects for 50 to 60 percent of their revenue. But with a possible influx of mainland Chinese architects after 1997, the Hong Kong architectural profession may be facing overcapacity for the first time in recent years (an unfamiliar feeling for a profession that had to create a new architecture school just five years ago to meet demand for architects). Dennis Lau of Dennis Lau and Ng Chun Man Architects and Engineers says, "The competition is coming in bigger numbers... than us. But there are still less than 30,000 architects in China." Although the number of architects in China is growing, "we still have at least five years to [sharpen] ourselves against the competition." The Chinese government has agreed to recognize the need for all professions in Hong Kong to maintain their own set of standards. Consequently, the Hong Kong Institute of Architects will administer a new examination, starting this September, that all architects—including foreign-licensed ones—will have to pass. Despite such issues, representatives from American firms with branch offices in Hong Kong appear to be unfazed by the transition. Says Gregory Yager, vice president of RTKL in Hong Kong, "American architecture firms bring American design and expertise. That will be the same whether we set up an office in Hong Kong, Beijing, or Shanghai."

Construction activity: A long-standing joke in the territory is that so much land is being reclaimed that people will soon be able to walk across the harbor. Vast tracts of added land are reconfiguring the Hong Kong and Kowloon harbor fronts, earmarked for rail and highway projects and for huge office/retail/hotel developments such as the $5-billion Central airport rail terminus. Much of this development is connected with the new airport at Chek Lap Kok, designed by Norman Foster and scheduled for completion in early 1998. The opening of Chek Lap Kok will allow Hong Kong's existing airport to be redeveloped. Plans are already underway to reclaim most of nearby Kowloon Bay to build a major residential/commercial development.

California dreaming: After a slump since mid-1994, the residential property market is recovering and rising incomes are driving demand for higher quality housing. While the classic cruciform-plan residential towers continue to sprout up throughout the territory, Hong Kong architect Ma Leung & Associates is pioneering a California-style community called Palm Springs. Comprising multi-story duplexes and a theme strip with stage-coach scenes from the Wild West, the development is a novelty for Hong Kong Chinese who normally squeeze a family into tiny high-rise flats. The project exemplifies a movement to greater diversity in residential design.

Harbor view: One of the first projects to be built on Hong Kong's newly reclaimed land is a major extension to the Convention and Exhibition Center, now jutting out into the harbor in the Wanchai district. Designed by Skidmore, Owings & Merrill with Wong and Ouyang of Hong Kong, the building is inspired by the uplifting image of seabirds in flight over water. The project is to be completed in time to serve as the stage for the 1997 Sino-British handover ceremonies.

Get thee to a nunnery: One of the most unusual projects underway in Hong Kong is the 356,400-sq ft Buddhist Chi Lin Nunnery, which is being built in an authentic Tang Dynasty (618-907 A.D.) manner, with *dou gong* brackets and ornamented ceramic tiles. The building, designed by local architect Don Pan & Associates, is an anomaly in contemporary Hong Kong.

Delirious Hong Kong: Dutch architect Rem Koolhaas, whose Office of Metropolitan Architecture (OMA) has been making waves in Europe for more than two decades, founded OMA Asia in Hong Kong with Aaron Tan in 1994. The firm's first crop of buildings—three commercial towers ranging from 25 to 45 stories—is currently under construction and is due to be completed in 1998 and 1999. "OMA Asia is fascinated by the urban conditions in Hong Kong and we are trying to weave ourselves into this dynamic flux," says Tan.

Zofia Rybkowski and John Seel in Hong Kong

Economy Shows Signs of Life As Public Building Leads the Way

GDP, 1995: $4.95 trillion
GDP growth, 1995: 0.4 percent
Projected GDP growth, 1996: 2.7 percent
Inflation, 1995: 0.3 percent
Population: 124 million

Economic overview: In the second half of 1995, the Japanese economy began to show signs of recovery from its prolonged recession. In 1996, this trend is expected to continue and "growth is likely to accelerate," reports Salomon Brothers in Tokyo. While public spending was the main engine of growth in 1995, both the public and private sectors are now contributing. In particular, corporate sentiment and profits have shown a marked improvement. The return of the yen to an exchange rate of more than 100 to the U.S. dollar from a peak of nearly 80 to the dollar in mid-1995 has been a relief to Japanese exporters. Meanwhile, although deflation appears to have ended, there are no signs of inflation on the horizon.

Politics: In the political arena, the Liberal Democratic Party's Ryutaro Hashimoto took over as prime minister in January, but there continues to be considerable uncertainty as the opposition New Frontier Party intensifies its resistance to the ruling coalition. A general election must be held by 1997, but could be called any time.

Commercial building: Private-sector construction in 1995 grew for the first time in four years, based on orders for the top 50 general contractors in Japan. The growth was a modest 1 percent, but larger increases are expected this year and in 1997. "Compared to a year ago, there is quite a lot of activity, particularly in the retail and entertainment areas," reports Michitaka Yamaguchi of RTKL International in Tokyo. Land values, though, continue to fall, with average prices of commercial and residential real estate decreasing by 9.8 percent and 2.6 percent, respectively, in 1995; the drop was particularly steep in the urban centers of Tokyo, Osaka, and Nagoya. The generally held opinion is that commercial real-estate values have yet to hit bottom.

Residential building: Housing starts declined 6.4 percent in 1995 and are expected to fall another 2.1 percent in 1996, says Salomon Brothers. That is despite a rebound in the beginning of 1996 driven in part by all-time-low interest rates offered by the state-run Housing Loan Corp. The agency's basic loan rate is now just 3.1 percent. "There looks to be more residential work for architects this year because of the increase in Housing Loan Corp. lending," observes architect Kazuhiko Namba, who specializes in residential design. In addition, many Japanese are expected to buy homes this year in anticipation of an increase in the consumption tax from 3 percent to 5 percent. Within the housing sector, prefabricated homes, both domestically manufactured units and imported ones, continue to gain in popularity. In each case, more competitive prices and better resistance to earthquakes are the drawing cards.

Public works: Public-sector construction took a big leap in 1995 due to a surge in government spending aimed at stimulating the economy. Based on the activities of the top 50 general contractors, orders were up 16 percent. Public-sector construction will continue to increase this year, predicts BZW Securities in Tokyo, but the rate of increase will be only around 4 percent. While cultural and recreational facilities are still being commissioned, the scope of government-sponsored work for architects is gradually broadening to include civil-engineering projects, public-housing complexes, and welfare facilities.

Public sector primes the pump: Japan is undergoing a public-building boom of unprecedented scale. Towns and municipalities across the country are in the process of building not only cultural facilities, such as museums and concert halls, but also schools, community centers, government offices, and transportation centers. And thanks to recent changes to broaden the range of job-procurement methods, such as an increase in the number of open competitions, architects young and old are benefitting from the new commissions.

Broadcast design: The five architects who founded the Tokyo-based firm Mikan are one such example. Prior to establishing their office in 1995, each of the designers had small firms of their own. By pooling their resources, the team won the competition for the Nihon Hoso Kyoku (NHK) Broadcast Station in Nagano City, about 185 miles west of Tokyo. Designed as a facility for the 1998 Winter Olympics, the 65,000-square-foot building will become the public broadcaster's regional headquarters at the close of the games. As a building with both

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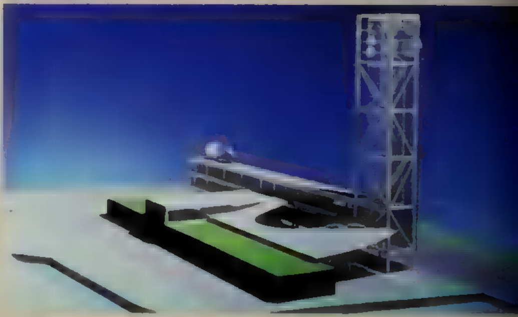

© Courtesy Kengo Kuma and Associates

Public building competitions won by yo firms include: the NHK Broadcast Station Nagano City by Mikam (top), and the A Service Area by Kengo Kuma (above).

public and private roles to play, the broadcasting center had to be open and accessible to visitors, but at the same time secure for NHK business and operations. Mikan's winning design gangs all of the technical facilities together below grade, freeing the entire ground floor for public us such as a restaurant, a cafe, and an information hall. Administrative offices are the upper floors.

Dramatic pit stop: Kengo Kuma, another young Tokyo-based designer, has also been successful in pursuing public work. Kuma is currently working on the Awaji Service Are a commission he won through a competition last August. The new facility will be situate the foot of the Akashi Channel Bridge, whic will connect Awaji Island and the city of Kol with the world's longest suspension bridge when it is completed in 1998. Designed to b transparent as possible, the glazed 54,000-square-foot building is a viewing platform f the dramatic structure and doubles as a pit stop with rest areas, shopping arcades, and food-courts for weary travelers. An engineering feat in and of itself, the unusua building boasts a 39-foot-deep cantilevered roof along its length. Anchored by toilet bl at either end and supported by only the slenderest of columns in-between, the dari roof structure is one of the first of its kind t be built in Japan after the devastating Hanshin earthquake of January 1995.

Naomi Pollock in Tokyo

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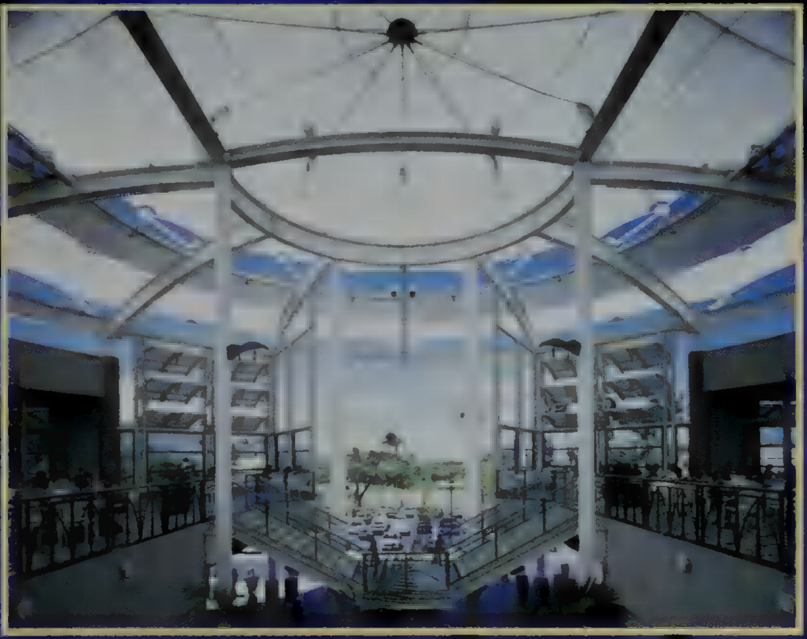

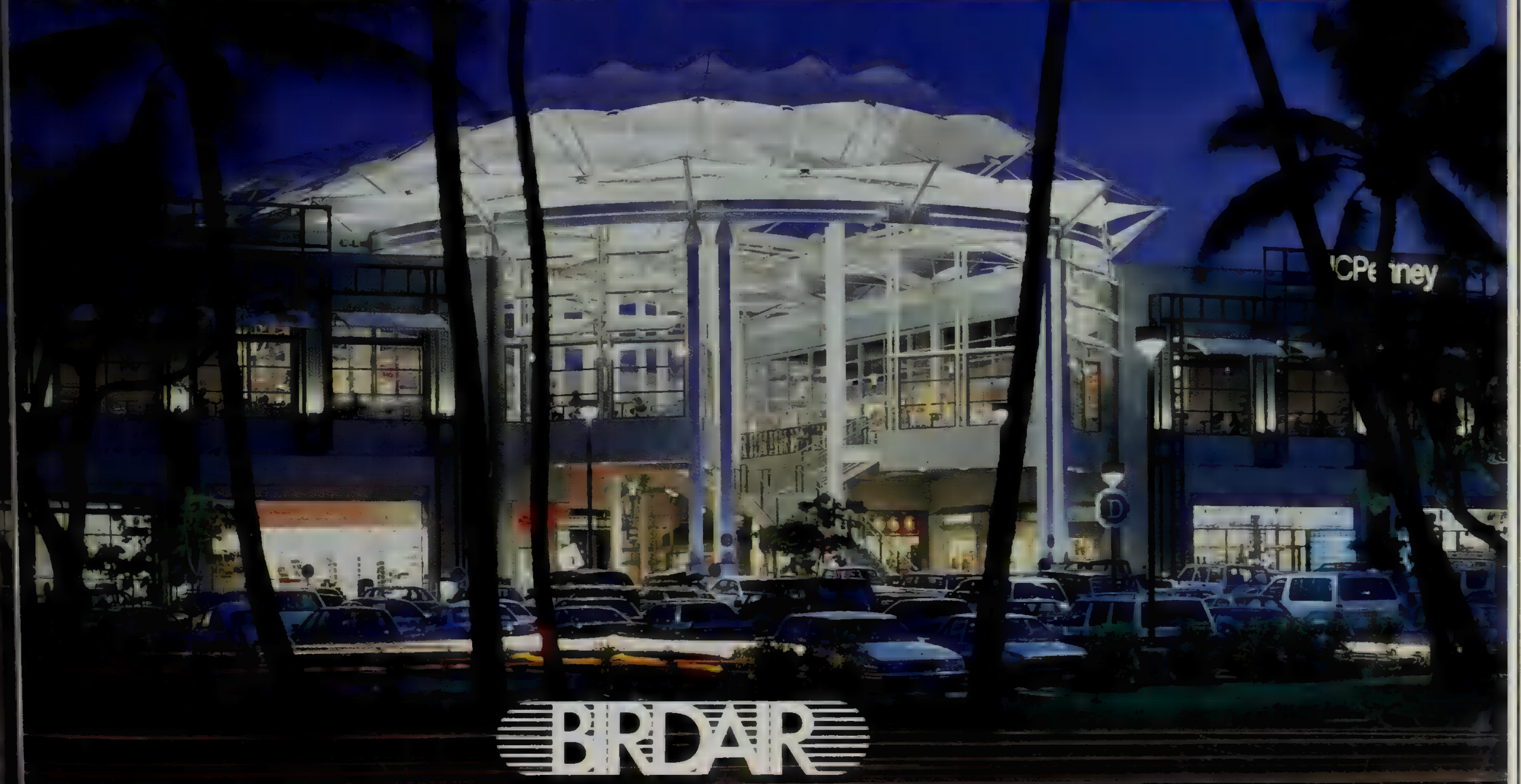

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Beating the Clock: Rapid Construction in Asia

By Katherine Kai-sun Chia

In the boom cities of Asia these days, construction seems to move at two speeds: fast and faster. Developers know that time is money, so reducing construction schedules is always on their minds.

Essentially, there are three ways of speeding up construction: 1. using new technologies, 2. employing project-delivery methods that allow more than one function to go forward at the same time, and 3. throwing lots of bodies at a particular task. In the past, this last method was the one most often chosen by Asian builders, because labor was cheap and advanced technology was scarce. Although labor is still much less expensive in many Asian markets than in the West, it is no longer the cheap resource it once was. As a result, Asian builders are relying more on technology and efficient project management and delivery to beat the clock.

According to architect Kevin Low of GDP Architects in Kuala Lumpur, "Rapid construction is popular here for the simple fact that it is the only practical way to work, given a time-short, work-intensive schedule which developers as a whole impose in a region where business opportunities abound. Rapid construction, aside from being popular in Asia, would be the adopted form of practice in any rapidly growing region of the world."

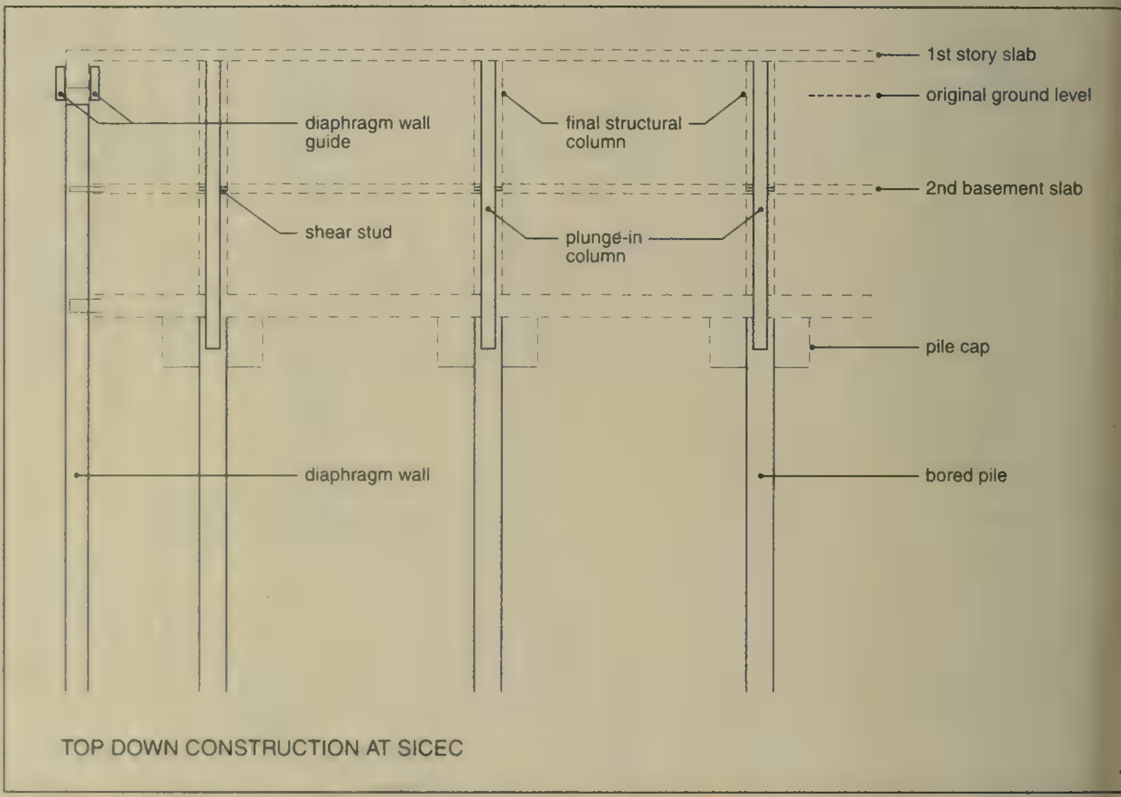
As in fast-track jobs everywhere, short schedules affect both the design and construction processes. Construction of foundations and even superstructure might begin before a complete set of construction documents has been produced. As a result, the architect may need to resolve design and construction issues as the project is going up.

"Top-down" construction is one of the more recent innovations in rapid-construction technology and has now been implemented on a variety of big projects with much success, especially in Singapore and Hong Kong.

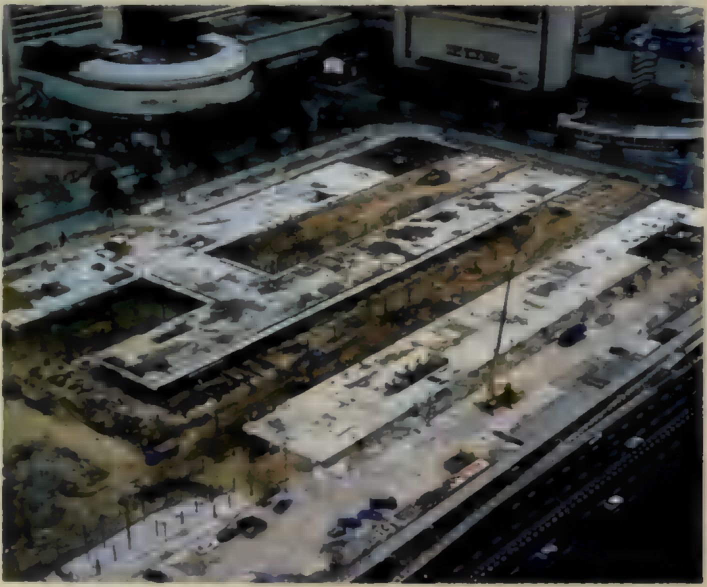
The process works like this: First, support pilings are installed and a reinforced-concrete platform, which will later become the building's ground floor, is erected at grade. The contractor then proceeds to build up and down simultaneously—erecting the forms for the next floors above while excavating for the basement and foundation levels below. Diaphragm walls form the permanent perimeter of the basement. Overall, construction time for a building's superstructure and basement can be cut by as much as 25 percent since they are built simultaneously.

Architects and contractors often develop hybrid rapid-construction methods to meet tight construction deadlines. The goal is to have as many components of the project under construction at the same time.

For example, Tsao & McKown Architects o New York City, in association with DP Arch tects of Singapore, used top-down construction in combination with traditiona ground-up reinforced-concrete methods an prefabricated roof components for the Sing pore International Convention and Exhibition Center at the Suntec City devel opment [RECORD, May 1996 pages 86-95].



TOP DOWN CONSTRUCTION AT SICEC



© Ian Watts

In the top-down constructio used at the Singapore Interna-tional Convention and Exhibition Center (left and drawing above), the ground-flo slab was built in an E shape, which allowed excavation to th first basement level to be done mostly in the open

Katherine Kai-sun Chia, is an architect and principal of Desai/Chia Studio in New York.

'he great benefit of top-down construction as to advance the schedule for the construc- on of the superstructure by at least six onths," says Graeme Forrest Brown of aunsell Consultants, an engineering firm.

speed up construction further, Maunsell veloped a "plunge-in method" in which eel columns were inserted into wet concrete top of the 339 bored piles, thereby fixing e columns in place as the concrete cured. ne plunge-in columns served as temporary pport for permanent formworks at the first vel and above, allowing the top-down con- ruction to proceed, says Ian Watts, senior sident engineer on the project.

r the roof, the architects designed a 570- ot-by-475-foot space-frame that was made components prefabricated in Korea while e building frame was being completed. The mponents were delivered to the top floor of e completed structure, quickly assembled, d the entire roof was lifted into place.

sing high-strength concrete is another ategy often employed when building hedules are tight. Cesar Pelli's 1,500-foot- gh Petronas Twin Towers in Kuala Lumpur .L.), used Grade 80 (about 11,600 psi) high- ength concrete for the first time in alaysia. (A metric system, the grade levels asure Newtons-per-square millimeter. The ndard grade in Malaysia is 40 to 50. anges in the ratios of basic ingredients d admixtures, such as fly ash and silica ne, increase the grade strength.)

uctural engineers Thornton-Tomasetti of w York developed the composite framing which the vertical core and columns were t in concrete for stiffness, while the floors re made of composite-metal decking and el infill beams.

np and slip forms

o of the most commonly used methods for eding up construction are "jump forms" "slip forms." Both are used for straight and down" concrete structures with etitive floors. The forms support them- es on the work completed below them.

lip-form construction, concrete is poured the form (generally, made of steel) and allowed to set. The form is loosened, slipped up to the next floor, re-tightened, and the process begins again. This method is typically used for flat-slab buildings with simple, continuous structural walls and columns.

Jump-form construction involves a form that is actually a machine. After the concrete has set, the form jumps outboard of the building and onto the next level, supporting itself on the work just completed. Generally, the form lifts itself up mechanically and is adjusted and leveled manually. Like slip forms, the jump-form method is used mostly for repetitive floors, but has the advantage of being able to accommodate more complex plans.

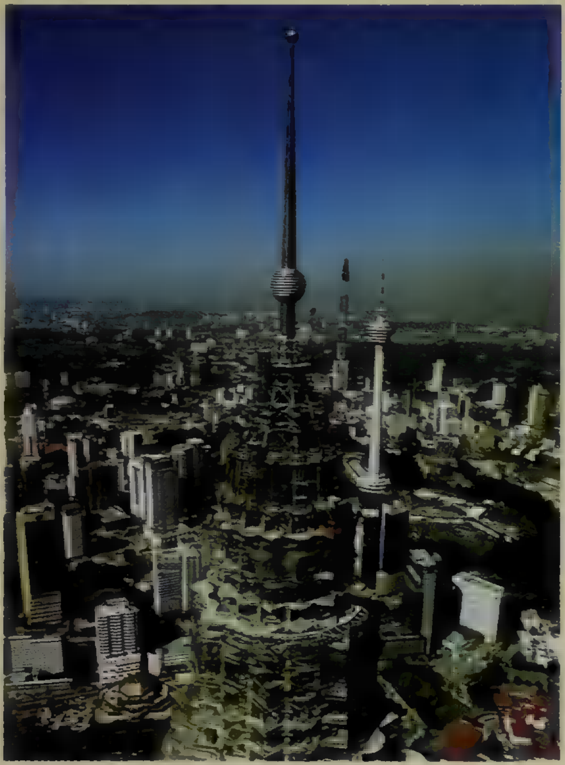
Self-climbing forms were employed for the cores, columns, and beams of the Petronas towers in Kuala Lumpur, since there was little space on the site for more cranes; portions of the perimeter were cast with steel and plywood jump forms. High-strength concrete allowed Pelli to reject the popular structural tube and design a building perimeter that appears column-free from the outside. The towers' 16 columns, hidden on the outside by a scalloped curtain wall, form a 152-foot-wide circle at the base and are spaced two times farther apart than is typical in concrete-tube structures.

Using unitized cladding in K.L.

Prefabricated building components also assist in speeding up the construction process (as long as they do not involve extensive lead times) and often complement other rapid-construction methods. Malaysian architect Ken Yeang of T.R. Hamzah & Yeang has explored the use of new window-cladding methods and unit-type systems which involve pre-formed frames with glass and integrated sunshades so the window and the cladding can be installed as one component.

Yeang used such a "unitized" cladding system to speed construction of his 27-story Central Plaza in K.L., completed in May. The entire external wall panel, consisting of frame and glazing, was fabricated on the ground, hoisted up, then clipped onto the floors.

© J. Apicella/CPSA



At the Petronas towers (above), high-grade concrete and self-climbing forms helped erect the world's tallest buildings faster.

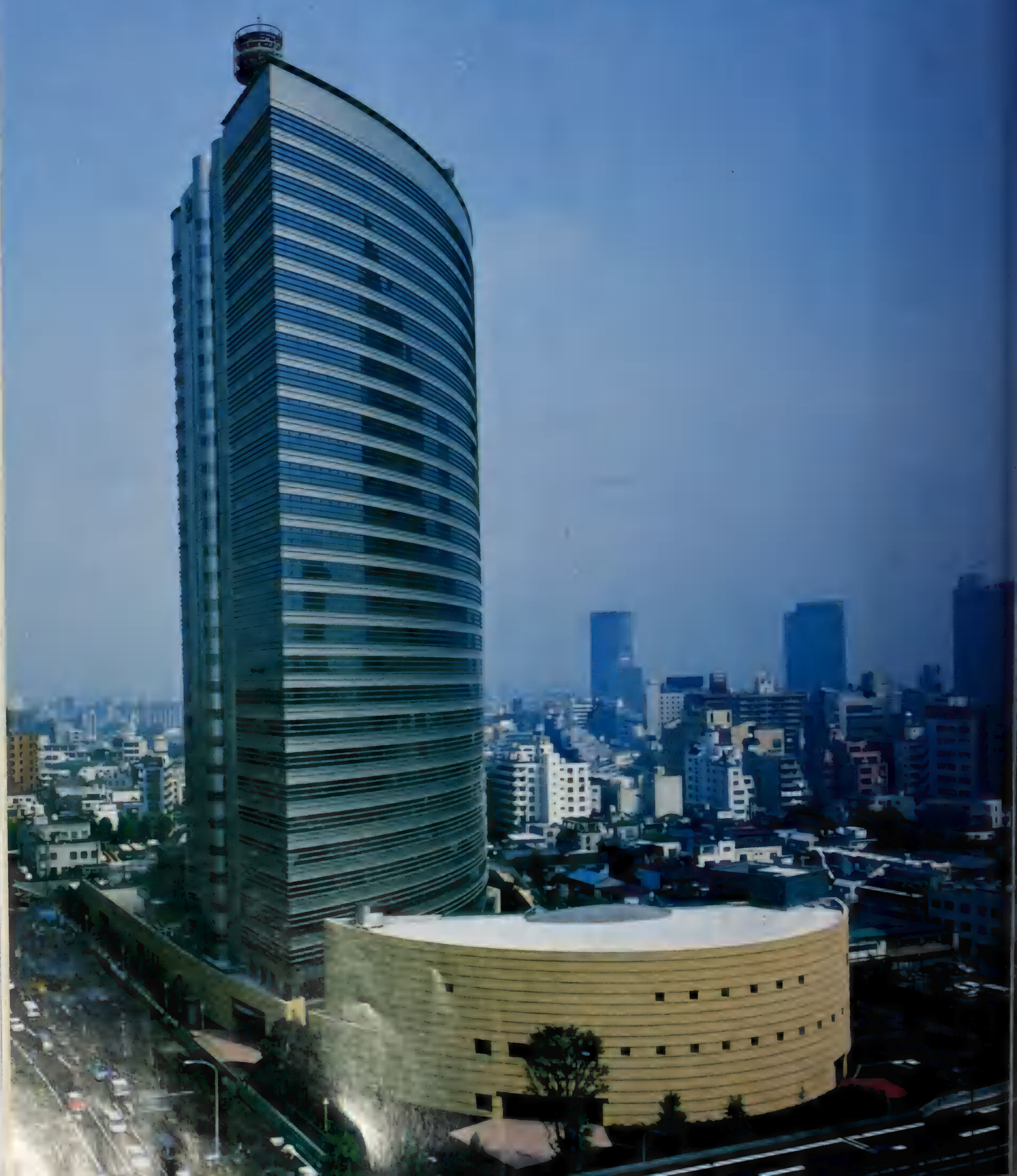
Muang Thong Thani, a new city outside of Bangkok, designed by Nation Fender Architects of Australia, includes 27,000 apartments in a combination of three-story blocks and towers ranging from 14 to 30 stories.

Initially, the towers were designed to have precast floors and poured-in-place walls. To speed up construction, the contractor Bouygues-Thai, a French firm, decided to use bearing walls and "tunnel forms." The forms allow the walls and floors of each modular apartment to be precast as a unit on the ground. The entire unit is then lifted up by crane and attached to the support structure. The low-rise housing was built at the same time using 27 precast panels per dwelling.

Ken Yeang is also experimenting with fabric and tent structures. The Guthrie Pavillion clubhouse in Selangor, Malaysia, set to begin construction this summer, will utilize a pneumatically supported fabric structure for the roof. With three German companies prefabricating the roof membrane and structural steel cables as the superstructure is being built, months of construction time will be saved and better quality control achieved for technology that is unavailable in Malaysia. ■

Pushing the Envelope

NTT Shinjuku Head Office Building
Tokyo, Japan
Cesar Pelli & Associates, Design Architect
Yamashita Sekkei, Architect of Record



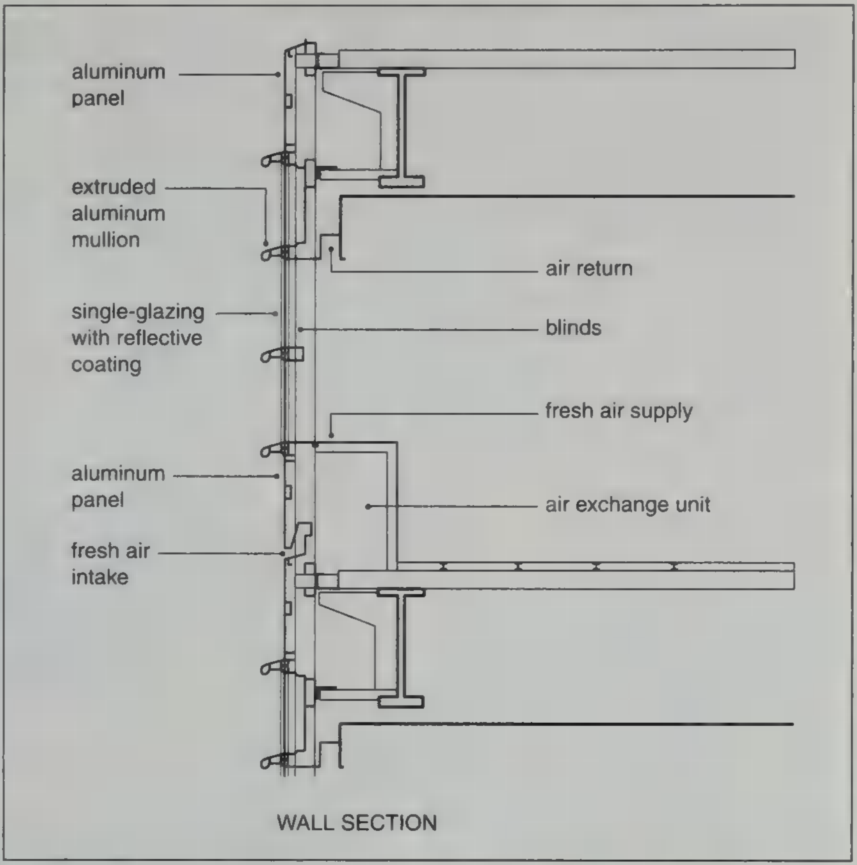
dled with site conditions and restrictions that would have driven any architects to despair, the new NTT Head Office Building in kyo shows how Cesar Pelli & Associates was able to turn challenges o design opportunities. Located in Shinjuku, one of the fastest owing parts of the city, the 30-story tower and its low-rise "special rpose" building are just a stone's throw from Kenzo Tange's new ty Hall on one side and a residential neighborhood on the other.

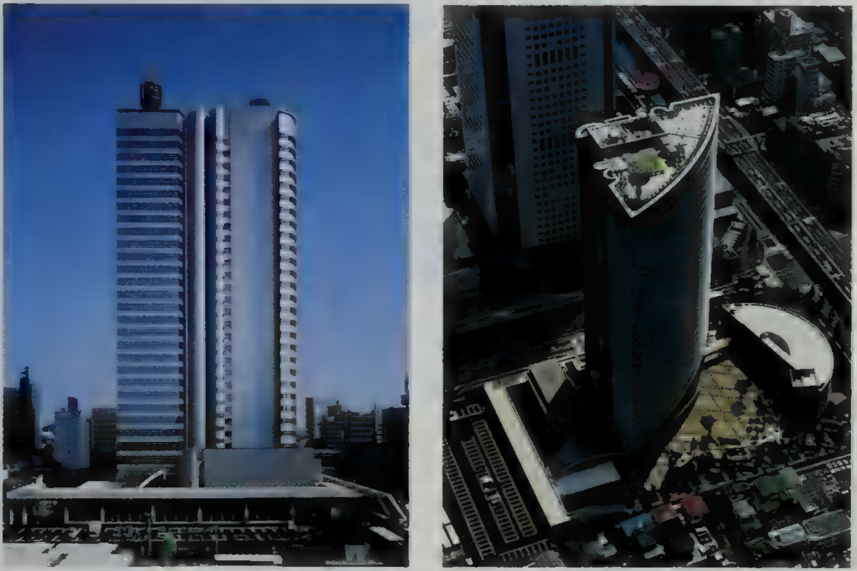
nsider the constraints. Planned elevated and subterranean highys, an overhead pedestrian crosswalk, and two existing microwave ansmission corridors severely limited where the building could be ed. At the same time, the city's sunshine-access regulations, which pulate that buildings may not cast shadows on nearby homes for ore than three hours a day, restricted the high-rise portion of the ility to a triangular volume. Views in one direction were set to dispear as a new commercial tower was built, while views in a second rection would be blocked if NTT decided to expand in the future. On p of it all, Japanese building codes demand a service core larger an those in the U.S. "This was one of the tightest and most difficult ilding envelopes I have ever worked with," says Cesar Pelli.

hile other architects might have just pushed the office tower to one rtion of the site, Pelli and his associates seized on the situation as opportunity to create a plaza, an unusual amenity in Tokyo. And stead of designing a simple triangular-shaped tower, the architects ned the building into an elegantly curved structure. The huge core, th its generously sized mechanical rooms, seismic dampers, and emen's elevator (in addition to the usual fire stair), was pulled away m the rest of the tower (rather than placed in the center of it) so office area could fan out in an uninterrupted arc. By placing the e where future buildings would block views, the architects minized the impact of such losses. Most importantly, the core was seen the architects as a way of expressing the nature of the building and client's business—telecommunications. "We wanted the core and skin of the building to present a high-tech, mechanistic image propriate for NTT," says Gregg Jones, a design team leader.

ch of the key service components—mechanical rooms, restrooms, stairs, and employee lounges—is clearly expressed on the exteri- of the building so the core reads as a series of sculptural elements her than one large block. By pulling these services away from the ss of the building, the architects were also able to open up views m the lounges, bring sunlight and fresh air into the restrooms, and light into the fire stairs. Another innovative twist that served both hetic and functional purposes was the use of beveled steel bands on curtain wall of the mechanical rooms, which direct air up before it es into the building, reducing the chance of water infiltration.

he office portion of each floor, a sense of openness was reinforced eeping partitions low and structural columns to a minimum. The l-frame structure's round steel columns and hefty 31-inch diame- were dictated by the spans across the office space and Japan's ngent seismic code, but they have little impact on sight lines or tial flow. The building's skin is comprised of slightly reflective le glazing with aluminum curtain-wall panels coated with metallic- fluoropolymer paint. Four rows of projecting aluminum fins ld the strip windows from the sun. For the comfort of NTT loyees, the office portion of the building has a fan-coil air-treat- t system along its perimeter, which supplements the central hvac em and is controlled by office workers. Indeed, the building ed out to be so impressive on completion, that NTT's top brass ded to move their offices to the new tower. *Naomi R. Pollock*



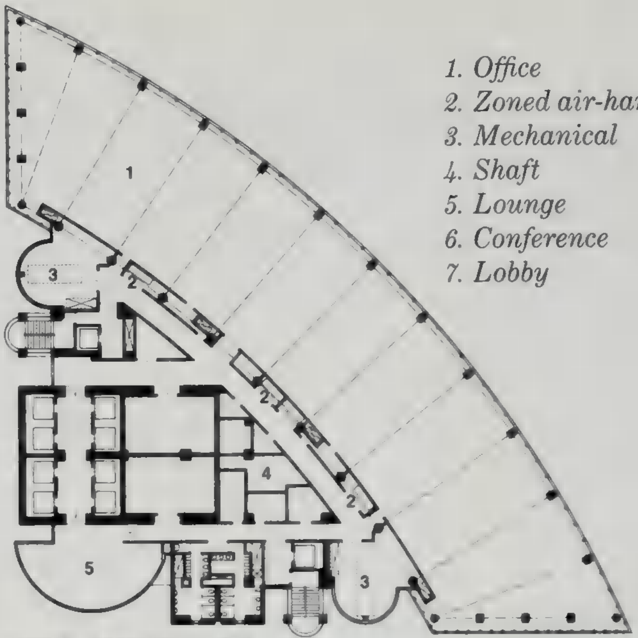

Nitsuo Matsuoka

Photos by Monma Kaneak iexcept as noted

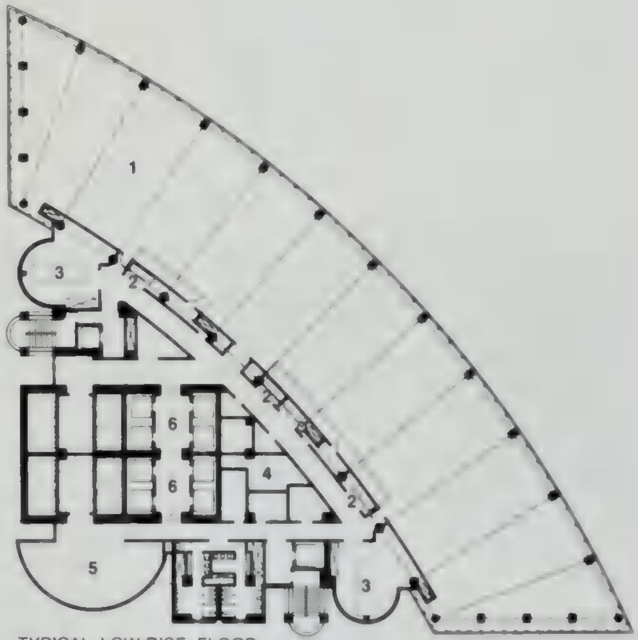
The sleek forms of the NTT building stand in contrast to the simple rectilinear towers found in most of Tokyo (opposite). Also unusual is the large garden separating the office tower from the 45,000-sq-ft "special purpose" building, a welcome amenity in a city with little green space (above right). The office tower's curtain wall (section above) is shaded by projecting metal fins (four per floor) on the outside and blinds on the inside. A perimeter air-handling system lets the curtain wall breathe by conditioning air as it comes in.

Continuing Education
For learning objectives and instructions, turn to page 65 in complete edition.

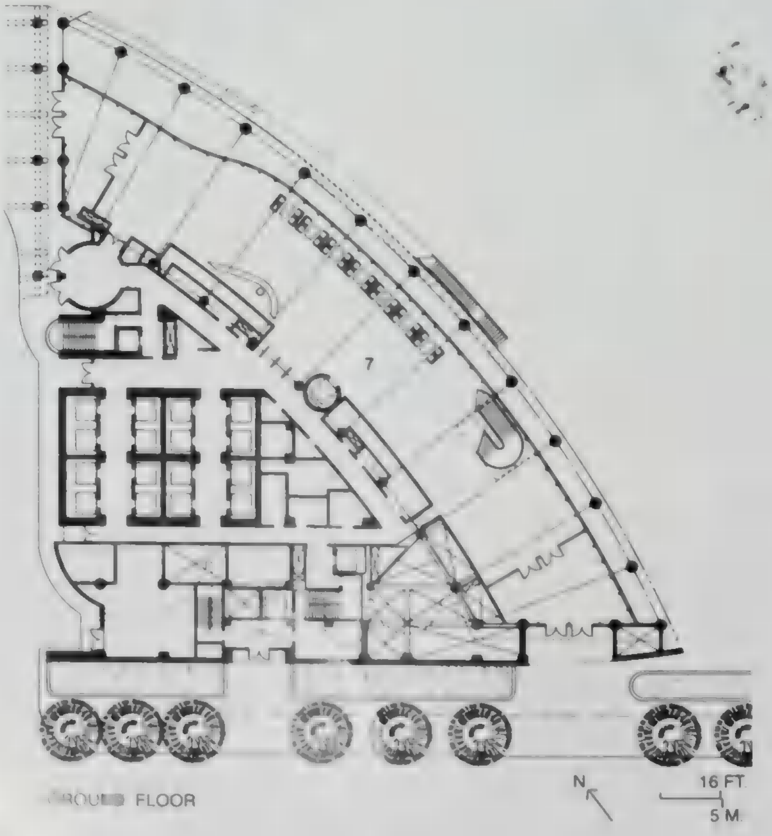
1. *Office*
2. *Zoned air-handling unit*
3. *Mechanical*
4. *Shaft*
5. *Lounge*
6. *Conference*
7. *Lobby*



TYPICAL HIGH-RISE FLOOR
(LEVELS 18-26)



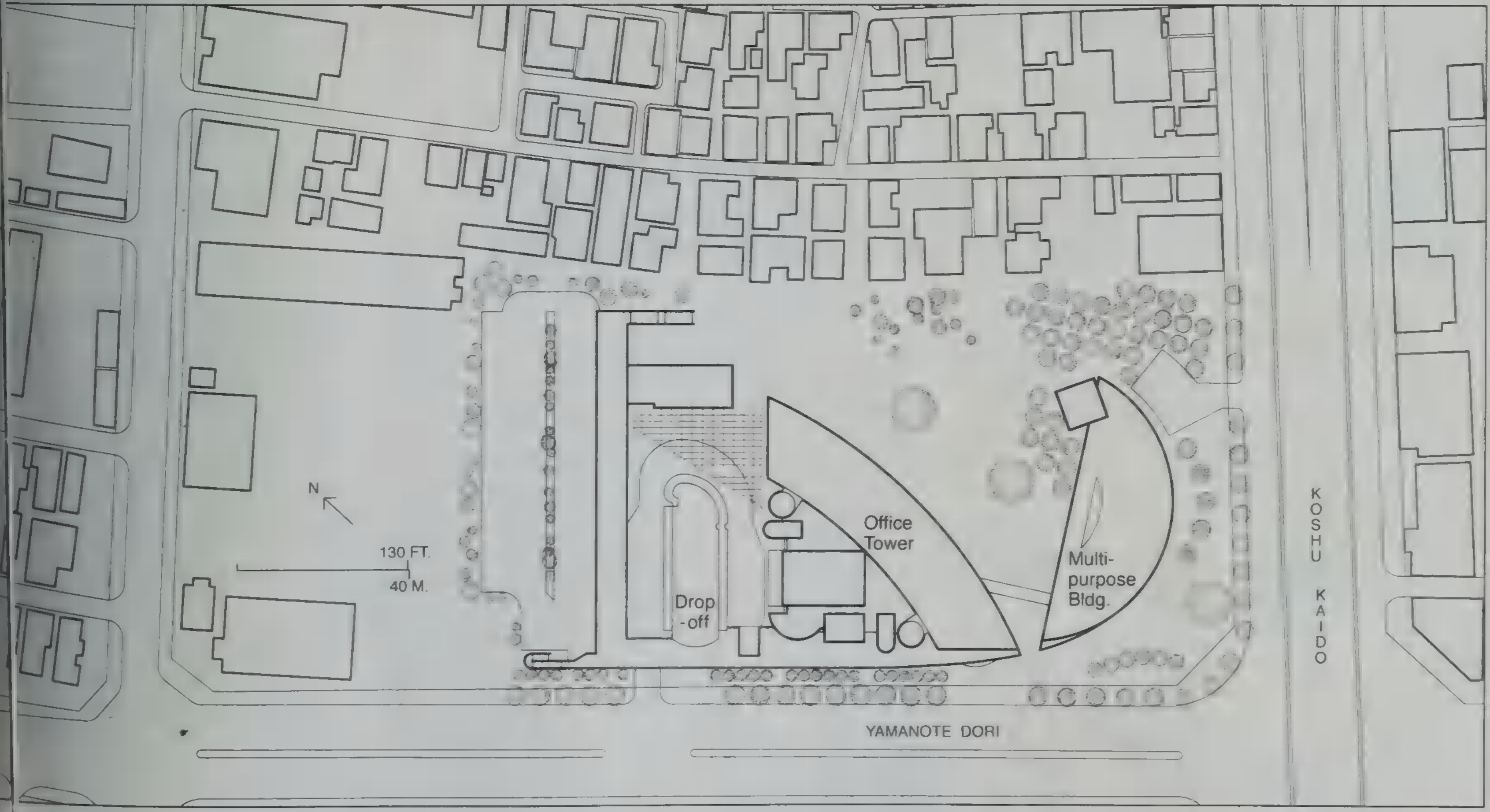
TYPICAL LOW-RISE FLOOR
(LEVELS 10-16)



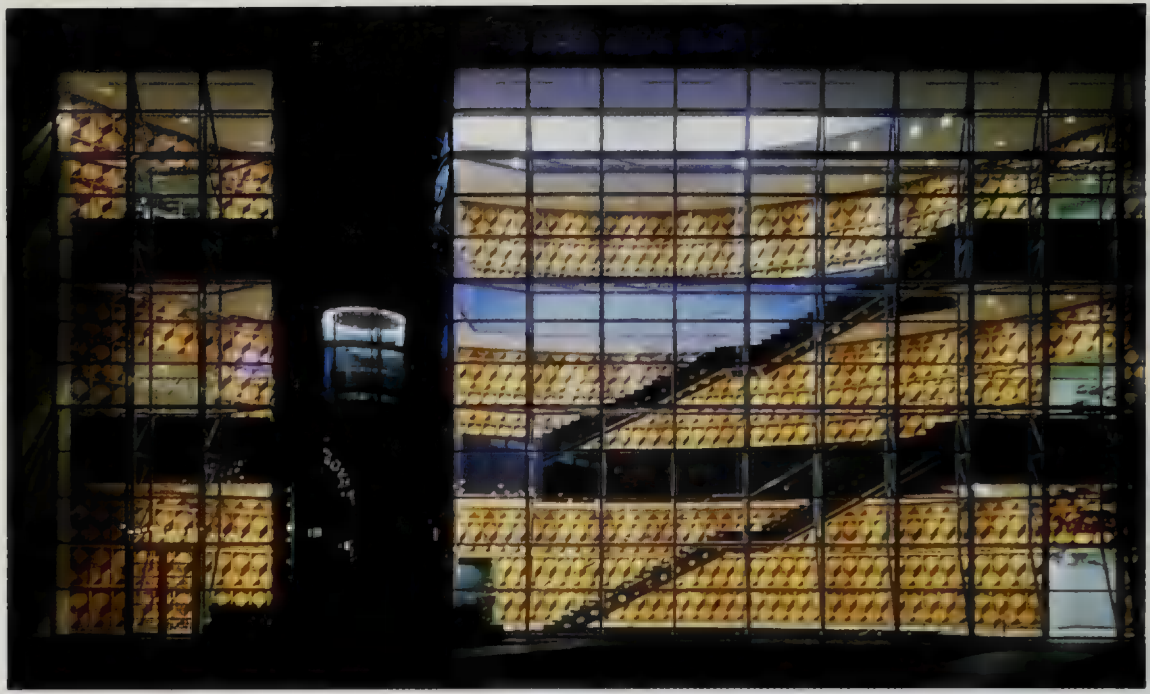
GROUND FLOOR

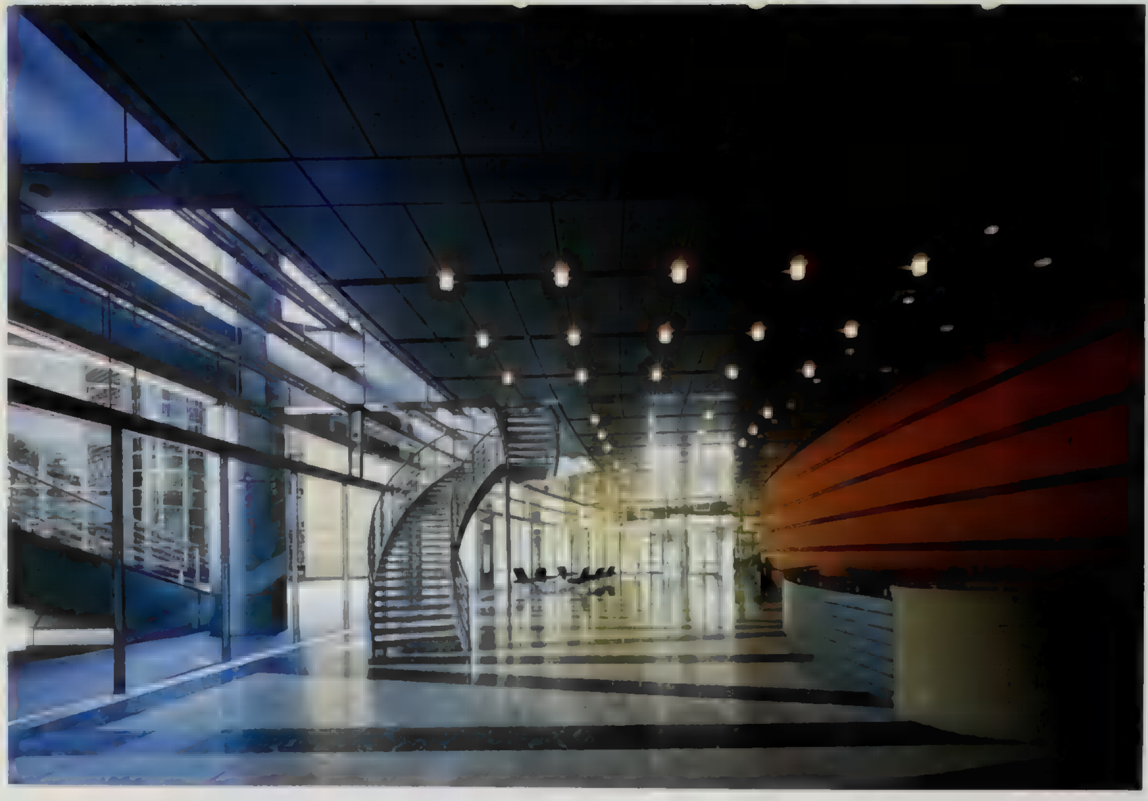
Because site and regulatory restrictions pushed the high-rise building off to one side of the lot, space was available for a landscaped plaza. Designed by Diana Balmori, the plaza is a playful environment that is a counterpoint to the more technologically driven architecture of the buildings (below and opposite). The "special purpose" building (left in photo opposite) houses NTT showrooms, an athletic club, and a medical clinic. Because the office tower's service core is so large, the architects pulled it away from the work area rather than placing it in the center. This allowed the office space on each floor to flow without interruption, taking advantage of views and providing the open work setting that Japanese corporations prefer (plans left). Only top executives get individual offices. Large cable shafts in the core and 4-in.-deep access flooring provide space for wiring. Semicircular "refresh" rooms on each floor are lounges with views to Mount Fuji. Facing south, these lounges are shaded by metal fins that project farther than those on the office portion of the tower.

© Toru Waki


N
130 FT.
40 M.
Drop -off
Office Tower
Multi-purpose Bldg.
KOSHU KAIDO
YAMANOTE DORI

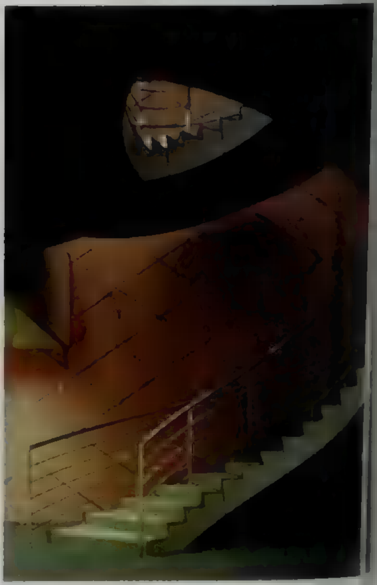
© Mitsuo Matsuoka





Space flows either out or up in key NTT interiors: horizontally in the office tower lobby (left below) and vertically in the atrium of the special-purpose building (opposite and left top).

Credits
NTT Shinjuku Head Office Building
Tokyo, Japan
Owner: *Nippon Telegraph and Telephone Corporation*
Design Architect: *Cesar Pelli & Associates—Cesar Pelli, design principal; Fred Clarke, project principal; Jun Mitsui, Gregg Jones, David Chen, design team leaders; Kevin Burke, Karen Koenig, Hirotaka Otsuji, Masami Yonasawa, Douglas McIntosh, Roger Schickedantz, Roberto Espejo, Ruth Bennett, Scott Aquilina, designers*
Architect-of-Record: *Yamashita Sekkei—Rintaro Murata, architect-in-charge; Katsuhiko Oozeki, Eiichi Takahashi, Masohito Katsume, Masayoshi Tsumoto, Kouji Watanabe, Masazumi Yoshida, project team*
Engineer: *Yamashita Sekkei (structural, mechanical, electrical)*
Consultants: *Balmori Associates, Soma Landscape Planning Co. (landscape); H.M. Brandston & Partners (lighting*
General Contractor: *Joint venture of Taisei Corp., Kajima Corp., Overseas Bechtel Inc., Takenaka Corp., Fujita Corp., Hazama Corp.*



Updating a Chinese Tradition: Canal-Side Living

Architects from Hong Kong and China design a new community outside historic Suzhou that borrows from the past but employs contemporary style and construction.

Balancing the demands of contemporary life with respect for tradition is one of the key challenges facing architects working in history-laden parts of Asia. Such a balancing act is even more delicate when the setting is Suzhou, China, the "Venice of the East," a city 60 miles west of Shanghai famous for its canals and exquisitely tended gardens. In both the planning and architecture of Suzhou Garden Villas—a 30-acre new community that will eventually include 372 apartments in 6 highrises, 88 single-family houses, and a 120,000-square-foot retail/recreation center—Wong Chen Associates of Hong Kong and the Suzhou Architectural Design Institute adopted a design approach of extending the historic fabric of the old town while at the same time updating it. "We wanted this project to be distinctively Chinese without resorting to clichés," says Nelson Chen, the New York-raised, Hong Kong-based design architect of Suzhou Villas.

Located in a new development zone west of the old city that was originally farmland, Suzhou Villas is being built in phases by a private developer from Hong Kong in an equity joint venture with the local government of Suzhou (a typical arrangement for such projects in China). Phase I, which comprises two 16-story apartment buildings, 20 single-family houses, and the entire shopping center, was completed last year. A second phase with two 18-story apartment towers and 20 individual homes will be finished by the end of this year. The timing of additional phases will be determined by sales of the units. Priced at about $350,000, the 3,000-square-foot houses have attracted mostly foreign executives working for companies such as Siemens, Philips, and Sony that have facilities in the area. The two- and three-bedroom apartments, which range from $100,000 to $150,000, are affordable to affluent Chinese, as well as expatriate executives.

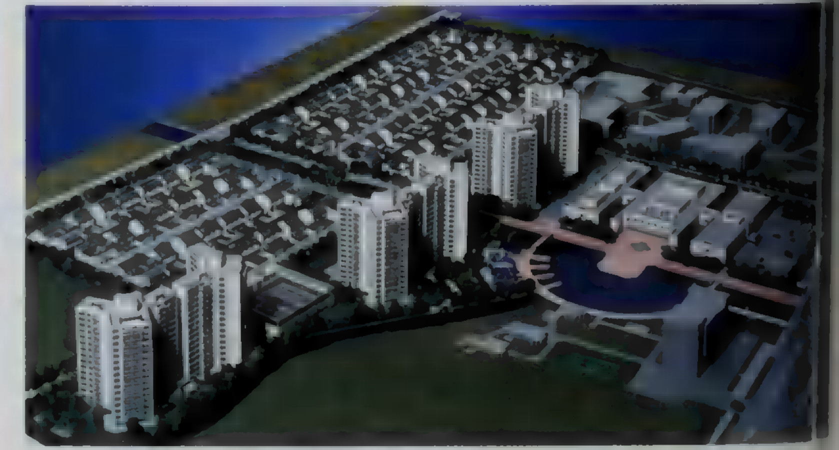
Encouraged by the client to draw from the traditions of Suzhou, Wong Chen planned the development around new canals that would connect with the city's existing network. "Our client, C.F. Tao [chairman of New Heritage Development], told us 'A house is not a house in Suzhou unless it has a garden and a canal view,'" relates Chen. In a characteristic improvement of old ways, the project has canals with their own filtration system, so the pungent aroma hanging over muc of Suzhou is fortunately missing here. Where two main canals meet, the planners created a semi-circular marina that serves as a gathering place for people to sit, talk, and watch boats.

From the main access road on the south edge of the site, the project unfolds in three zones—the most public uses (shopping and recreation) closest to the entrance, the most transit-dependent (apartments) in the middle where they can be close to stores and bu stops, and the most private (single-family living) aligned along smal canals to the north. Because Chinese tradition calls for homes to ha southern exposures, the architects developed a Y-shaped configuration for the high-rise buildings, in which two apartments on each flo face due south while the other two units face either southwest or southeast. For the single-family houses, the architects devised two variations of each of three plans so no matter which direction the front door faces, the main living areas always look south.

While the shopping center and apartment towers are standard in their concrete-frame and brick-infill construction, and don't break a new ground in terms of their architectural expression, the single-family houses show a level of sophistication rare in China. Having pioneered low-rise alternatives to Hong Kong's high-rise culture at two large developments in the New Territories, Wong Chen had a wealth of experience fitting single-family houses together to form attractive streetscapes, ensuring privacy for all units, and creating sense of community. Kit M. Chung, the owner's architect for this project, says "This has become a special community and people fro the area come to visit the restaurants and enjoy the marina."

For Suzhou Villas, the architects designed three different kinds of houses: a "villa" unit with a square footprint and American-style double-height entry hall, a "canal" unit with greater frontage on th water, and a "courtyard" unit with a more traditionally Chinese pla that wraps around a central outdoor space. By using all three kind houses on each block, Wong Chen was able to create streetscapes w a sense of variety and to avoid views from one house into another. T plans also provide a variety of outdoor spaces—gardens, courtyard and balconies—that overlook the canals and make water an approp ate symbol for the entire community. *Clifford A. Pearson*

Kerun Ip photos, except as noted



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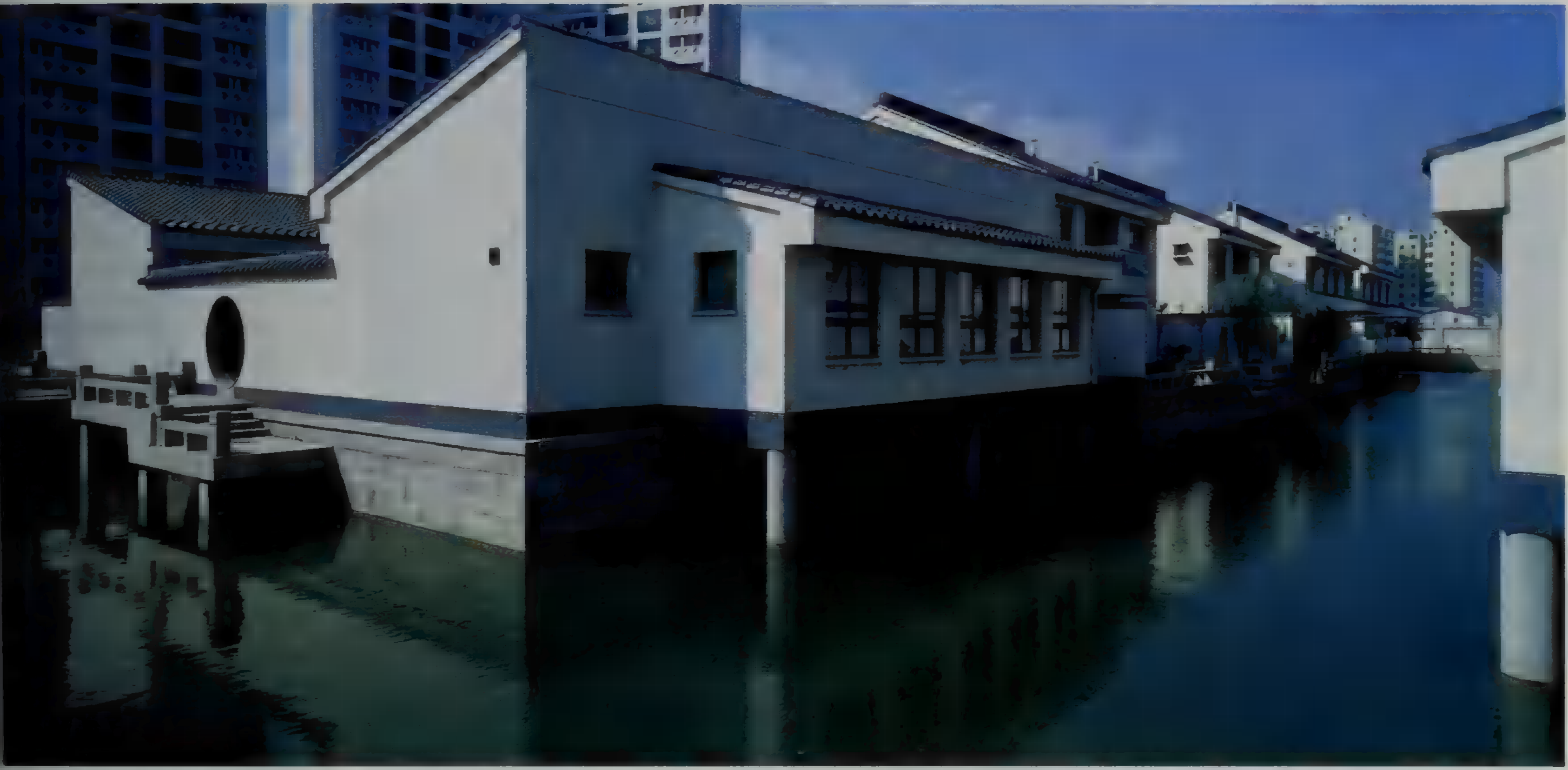
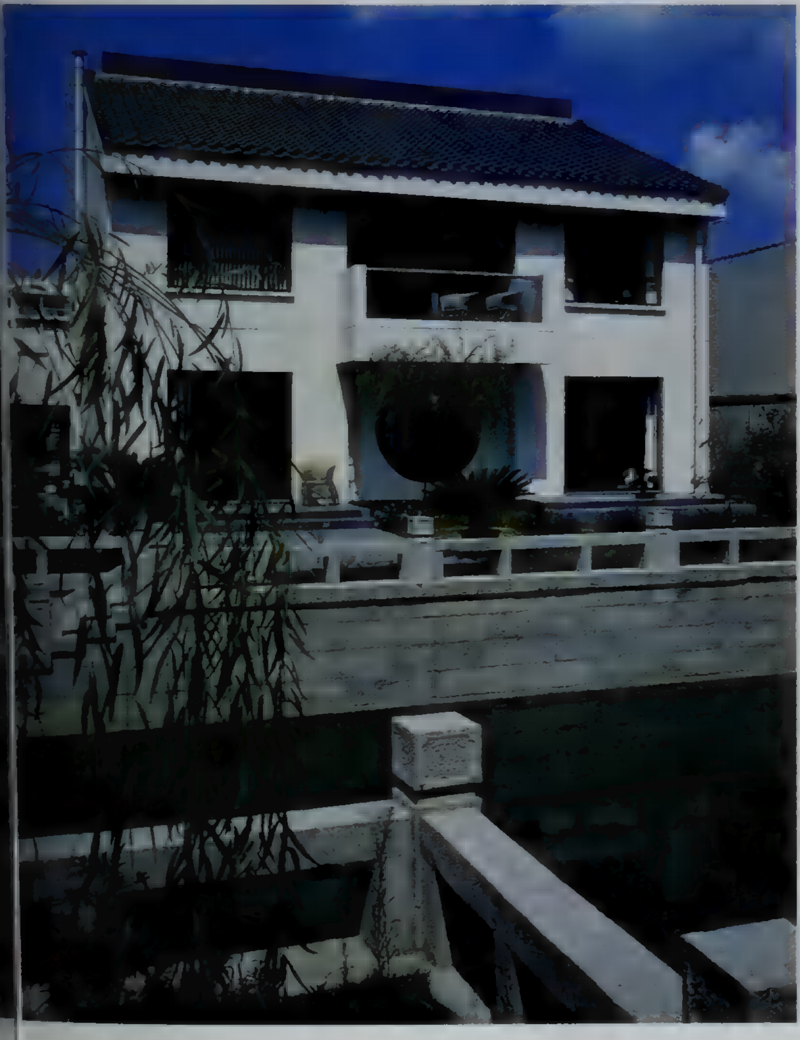
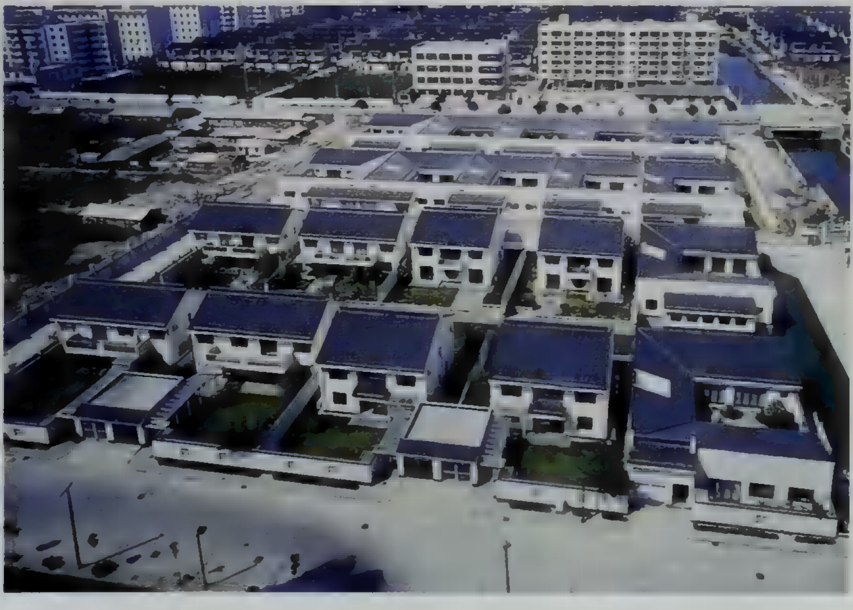
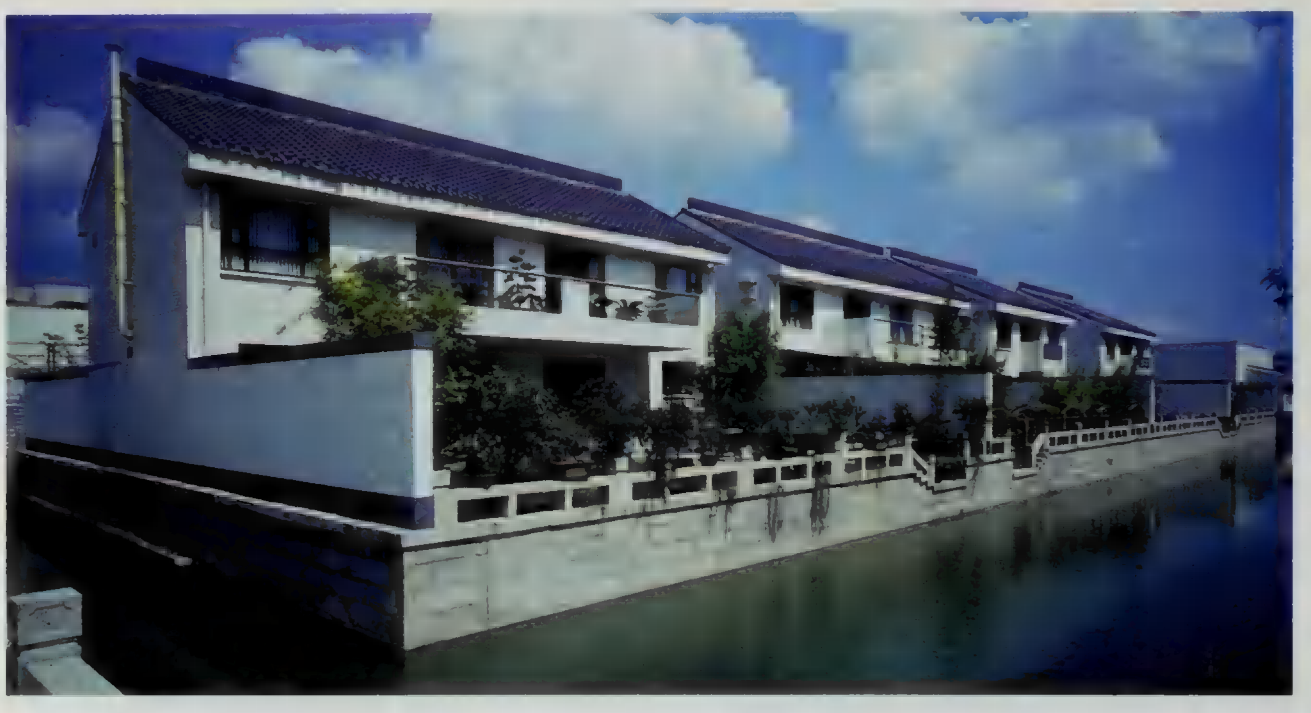
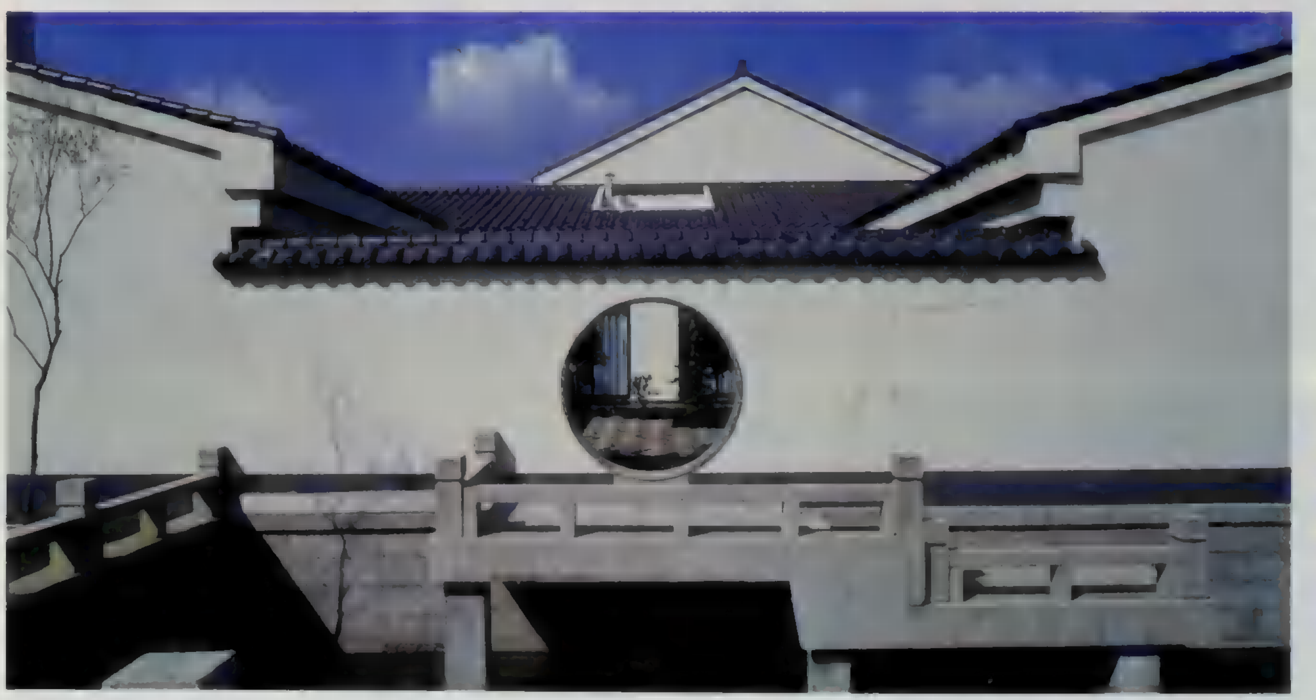


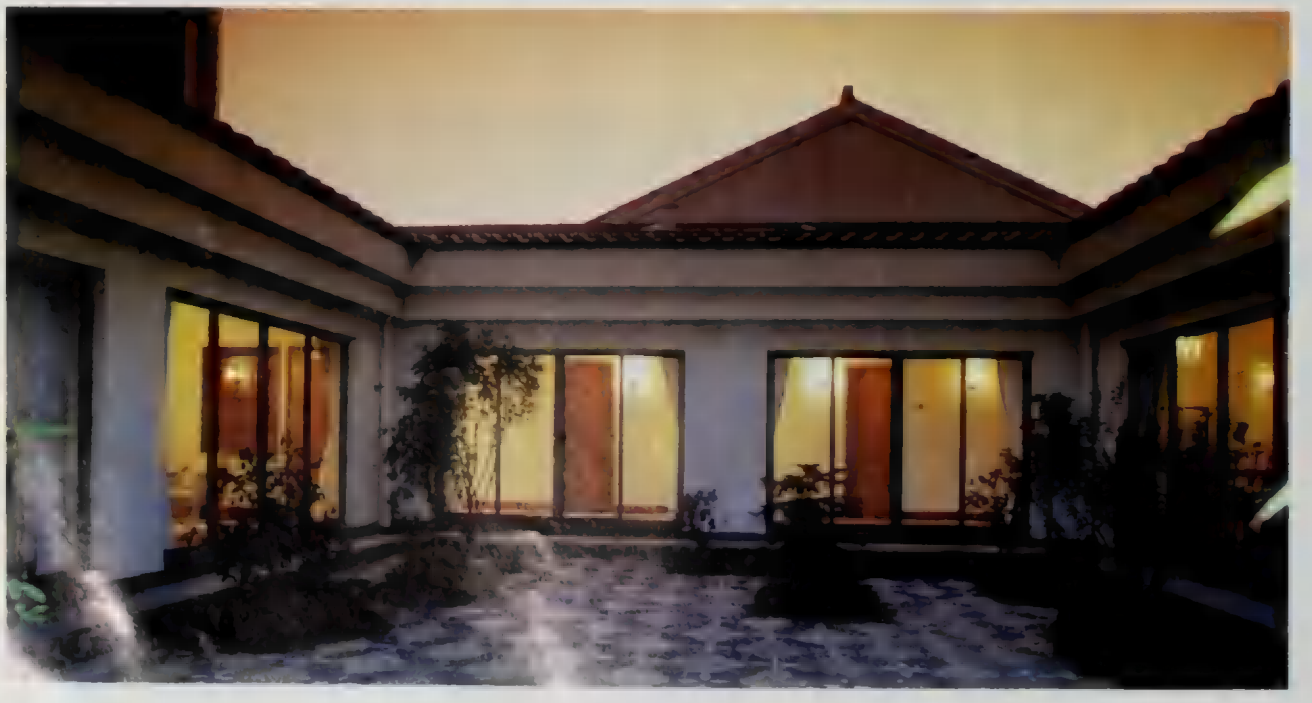


Model photograph (opposite right) shows the project at completion with six apartment towers and 88 single-family houses. The first two towers and the shopping center (opposite left) are the most public face of the new community. Like the larger buildings, the houses on canals are reinforced-concrete-frame structures. The individual houses come in three basic types: a two-story "villa" unit (left) with 2,875 square feet, a "courtyard" unit (above) that has 2,900 square feet and is the only single-story scheme, and a "canal" unit (following page top) that is the largest plan with 3,060 square feet. The masterplan calls for the courtyard units to be used only at the end of each row and for the other two units to be varied within the rows (below).









While inspired by the canal buildings in old Suzhou (below Wong Chen Associates wanted strike a balance between the American-style houses increasingly popular in China and traditional building forms. All the houses are concrete-frame structures with painted plaster over brick infill, glazed roofing tiles, and granite trim.

Each of the models blends East and West in different ways. The two-story "canal" model, for example, combines the gable ro and simple footprint found in many Suzhou houses with a lo balcony and California styling (left top). The "courtyard" mod (left middle and bottom) is mor overtly Chinese with a circular doorway leading from a centra yard to the canal. Although almost all the buyers are foreig business executives, the courtyard house has been the most popular and has prompted the developer to build more of these models than originally planne

© Clifford A. Pearson

edits
zhou Garden Villas
zhou, China
ent: *New Heritage*
velopment, Hong Kong, and
zhou Garden Villa
velopment & Management,
.C.
chitect: *Wong Chen*
sociates—Nelson Chen, design
chitect/principal-in-charge;
n Santos, project
chitect/design; Eric Sau,
oject architect/production;
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chitect/administration; M.S.
an, project manager; Marc
son, Alan Hui, Rachel Seno,
. Tang, project team
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ntractor: *Plant Construction*
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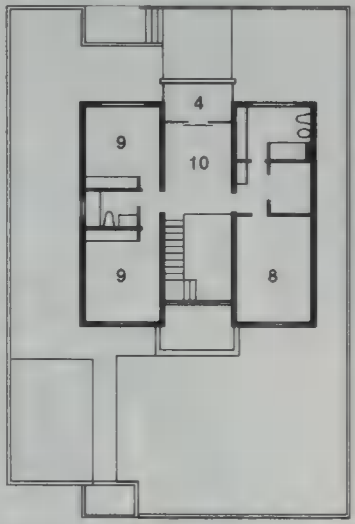
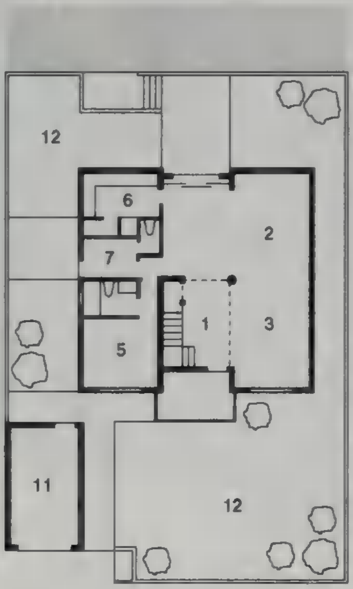
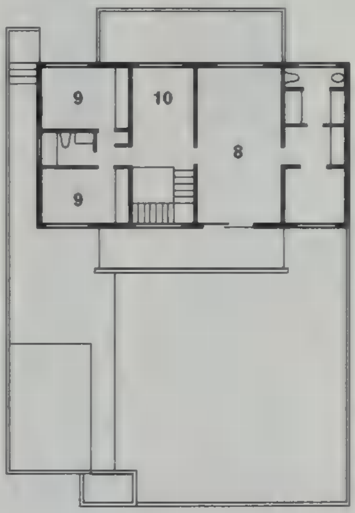
ilway Ministry



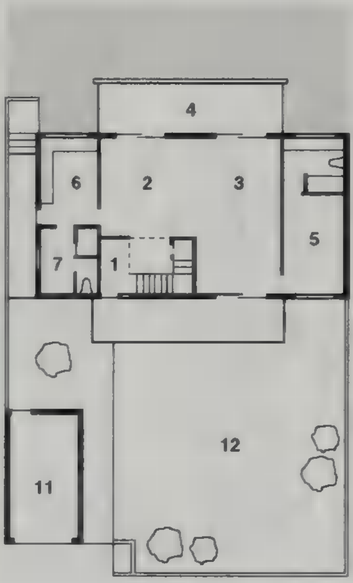
SECOND FLOOR - VILLA HOUSE



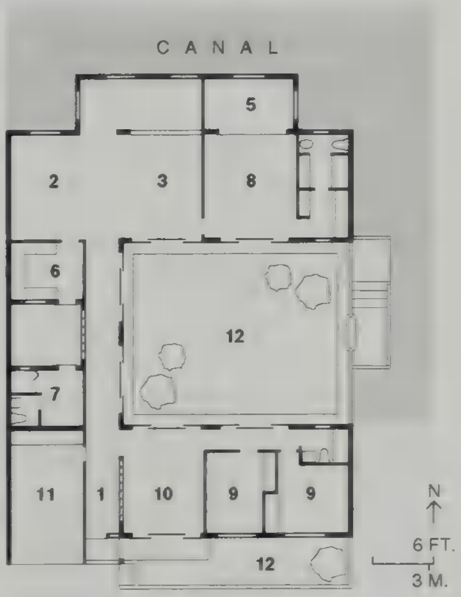
GROUND FLOOR - VILLA HOUSE



SECOND FLOOR - CANAL HOUSE

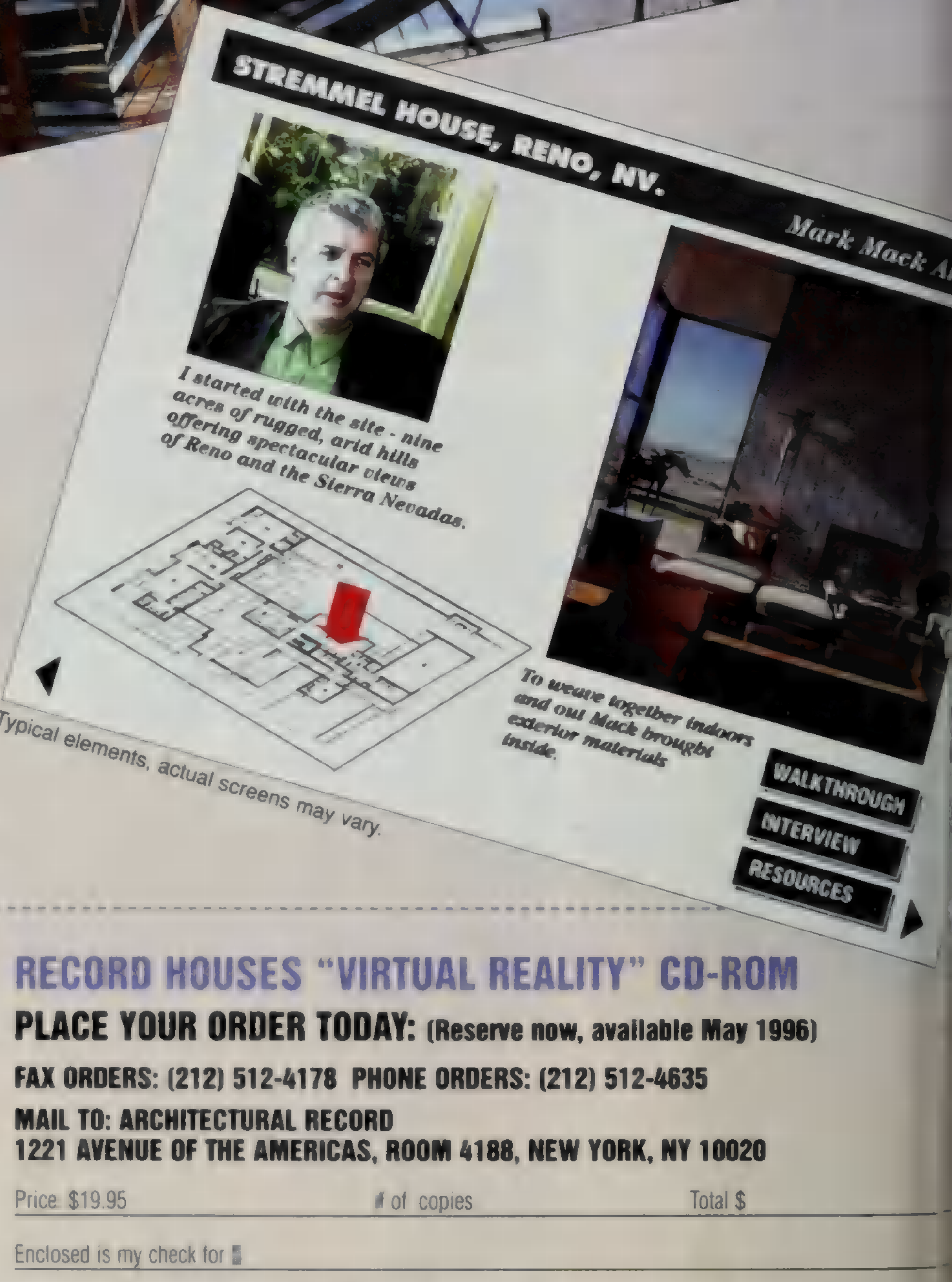


GROUND FLOOR - CANAL HOUSE



GROUND FLOOR - COURTYARD HOUSE

1. *Entry*
2. *Dining*
3. *Living*
4. *Balcony*
5. *Study*
6. *Kitchen*
7. *Utility*
8. *Master bedroom*
9. *Bedroom*
10. *Family*
11. *Carport/garage*
12. *Garden*



STREMMEL HOUSE, RENO, NV.

Mark Mack A

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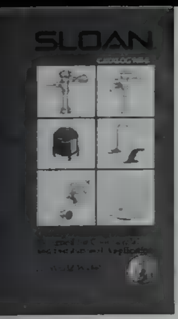

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ated fittings. 708/671-4300. Sloan
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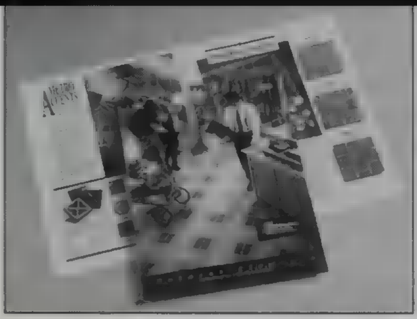
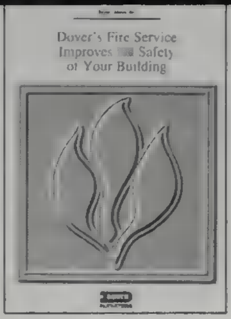
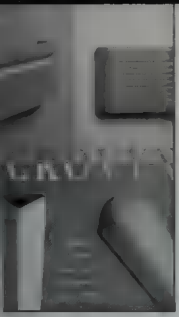


201. Tile for any weather
An eight-page catalog shows tile in heavy-traffic areas such as schools and malls, illustrates the current color range, and introduces glazed decorative inserts for Ironrock and Metro unglazed-tile floors. Describes how "flashed" colors, created by reduction firing, vary subtly from tile to tile. 216/484-4887. Metropolitan Ceramics, Canton, Ohio.

202. Maine-made furniture
A new 32-page catalog, offered without charge, illustrates all 110 standard Moser pieces; details the maker's craft approach to finely made, durable wood furniture; and introduces Windward, a new contract-oriented line of casegoods, tables, and seating based on common design elements. 800/708-9703. Thos. Moser Cabinetmakers, Auburn, Me.



203. Elevator-service upgrade
Dover says its Fire Service upgrade, a microprocessor-based addition to existing elevators, increases building safety and value while decreasing liability. A brochure explains how the equipment adapts to most types of elevator-control and hall-call systems, including those made by other manufacturers. 601/393-2110. Dover Elevators, Memphis, Tenn.



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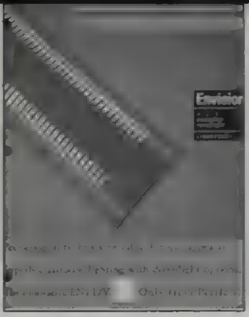
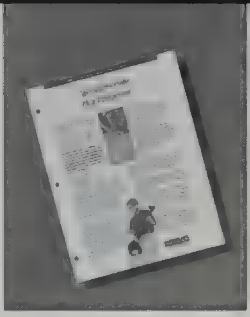
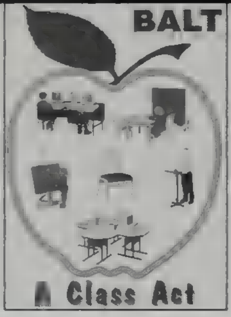
33-8493. C/S Group, Muncy, Pa.



205. Classroom lighting
A less-costly version of this maker's Envision optical system, the EN1 Lightvent luminaire can work within the tight budgets typical of institutional projects. Illumination is primarily indirect; three perforation-pattern options allow a measure of downlighting. Brochure cites photometric and finish data. 510/845-2760. Peerless Lighting, Berkeley, Calif.



206. Play-area planning
The first in a series, a Playguide bulletin discusses age-appropriate play equipment, covering safety concerns and the physical, cognitive, and social-skill levels characteristic of various ages. Prepared for school personnel, park designers, and others involved in specifying playground equipment. 800/328-0035. Landscape Structures, Inc., Delano, Minn.



207. Classroom furnishings
A 12-page catalog illustrates storage units, training and library tables, study carrels, space dividers, display pieces, and seating constructed in a range of sizes for children in grades K-12. Colorful furnishings are made of solid maple, maple veneers, and decorative laminates; prices listed. Balt, Inc., Jacksonville, Tex.

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bing fixtures for schools, facto-
nd secure facilities are shown in
age catalog. All finish options
mensions are given for wash-
ins, multiple-station lavatories,
ing faucets, and low-flow
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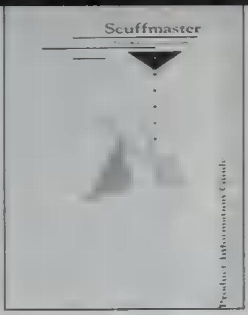
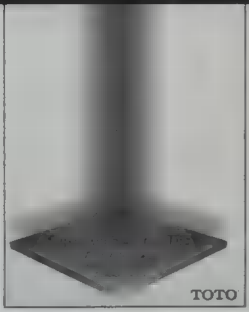


209. Multicolor wallcovering
Described as a waterbased aliphatic urethane fortified with Kevlar, Scuffmaster is said to be an exceptionally durable paint for heavy-traffic, abuse-prone settings indoors or out. Decorative options include strings, knock-downs, metallics, pearl-like finishes, and solid colors; can be touched up. 612/454-0546. Master Coating Technologies, Eagan, Minn.



210. Antibacterial tile
Photoactive technology allows tile and other treated surfaces to remain relatively free of bacterial growth, even in the busiest, least maintained public washroom. Tile glazed with Toto P-TOF also resists the formation of stains and odor. A bulletin explains how the process works, and suggests applications. 714/282-8686. Toto Kiki USA, Inc., Orange, Calif.

211. Contract wallcoverings
An eight-page catalog describes the product-performance and decorative advantages of vinyl wallcoverings in heavy-use settings. Colors coordinate with carpeting, flooring, and laminates from major sources; custom patterns available on order. Sample books offered. 201/489-0100. Genon Wallcoverings, Hackensack, N.J.

Continued on page 152

** Product Data on CAD disk*

Europe practice *continued from page 41*

seemed to want American-style skyscrapers. "That's now over," he says. And, American architects, reared in a business climate that relies on proven methods more than critical thought and intellectual exploration, compete at a disadvantage for the cultural and public projects that have won recognition for Europeans such as Santiago Calatrava, Renzo Piano, Norman Foster, Jean Nouvel, and Rem Koolhaas, to name only a handful of Europe's current star players.

Northern welcome; southern brushoff

The profound economic and cultural differences that still divide the countries of the European Union also affect where Americans can successfully practice: the work is predominantly in northern Europe, where largely countries seem to have a natural affinity for American ways of doing business. There's a corresponding lack of penetration in the south, including France.

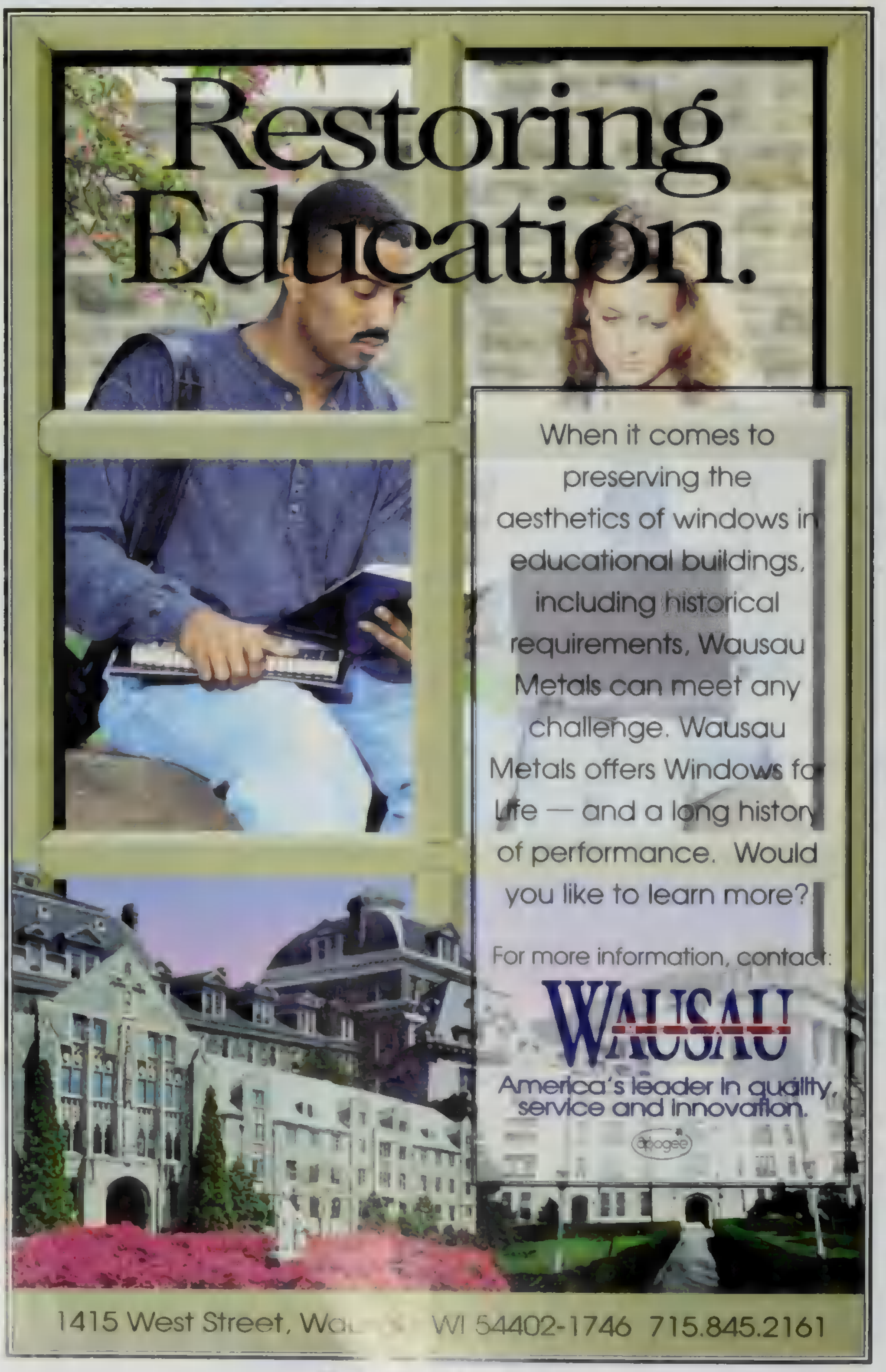
Development is weaker on the Mediterranean rim, where projects of a sufficient scale to attract American firms are fewer and local economic and government policies can be more Byzantine. John Burgee and Philip Johnson's twin leaning towers became an a too prominent emblem of speculative hubri in Madrid. Now nearing completion, they stood for years as bare, steel-framed evidence of a money hemorrhage reputedly perpetrated by the Kuwaiti investors' corru local managers. Italy, mired in political turmoil, never fully realized its last prestig redevelopment—the 1992 exposition in Genoa—even with local architect Renzo Piano in charge.

Mediterranean countries have seen megaprojects like Spain's 1992 World's Fair and Olympics as both attention-getting and eco nomic-development tools. In Portugal, SOM London is building an arena and observatio tower for the 1998 Lisbon World's Fair.

The British market, surprisingly, has not been easy for Americans to penetrate. London is one of the world's principal exporters of architecture but, prior to Cana Wharf, virtually no foreign work had been built there since the 1930s. Together with Venturi, Scott Brown's addition to the National Gallery, Canary Wharf became a symbol of national decline and the surrende to American values. This reaction lead direc ly to a new appreciation for the local architects of the high tech school that had long enjoyed acclaim abroad.

Despite these obstacles, work in Europe offers opportunities. KPF's Polisano report "European clients are terrific. Most are ve interested not only in monetary return, but ideas, in advancing architecture for the sak of what it contributes socially and physicall to the environment." Fees are generally higher as well.

European firms, such as Piano's Building Workshop or Sir Norman Foster and Partners, as well as the engineering firm of Ov Arup and Partners, have pioneered in the development of international practices that reflect a new global interdependence, with network of offices, each of which may be quite small (Arup has more than 50) and international staffs. Many were first-proje offices, which have learned to fend for then selves after the original project was completed. KPF seems to be following this model with its London bureau, which work independently but in close coordination wi its only other office in New York City. The KPF model allows the possibility for ideas and innovations to flow in both directions. Such cross-pollination, if more widely prac ticed by other firms, could strengthen American architecture as well.



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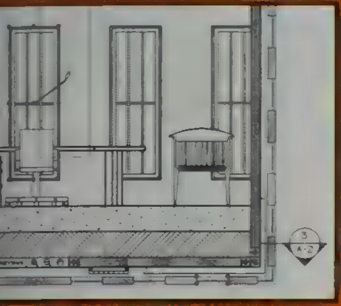

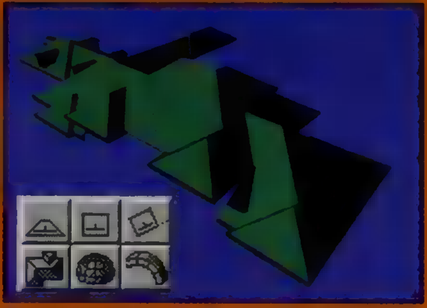

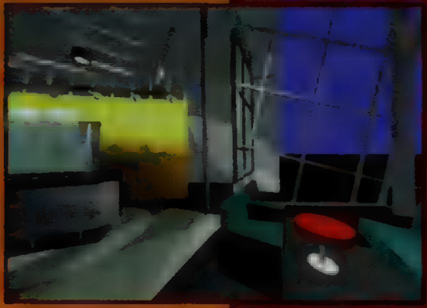

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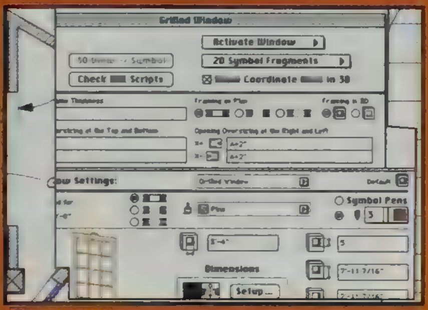

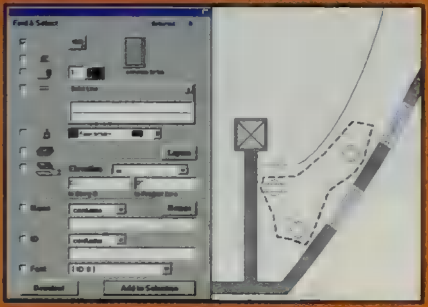

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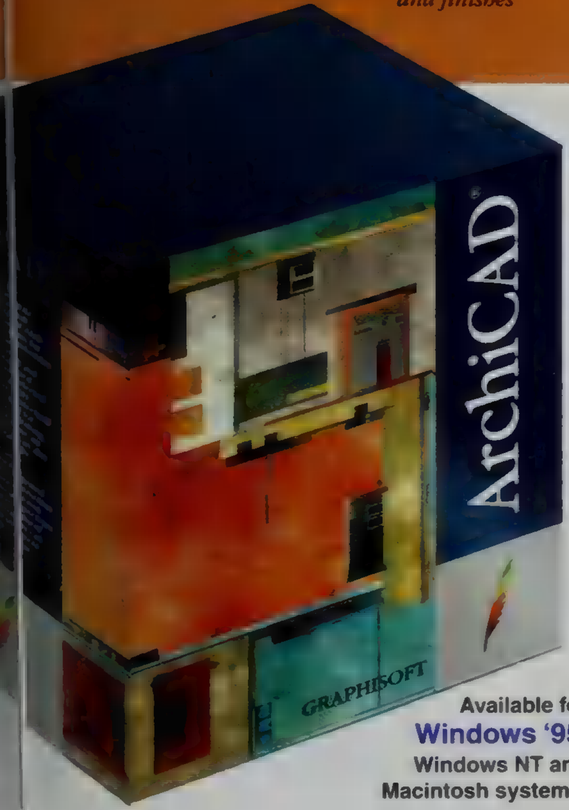

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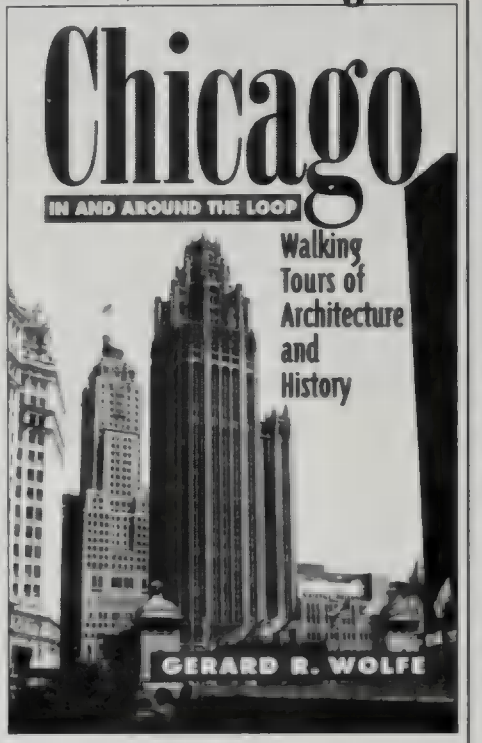
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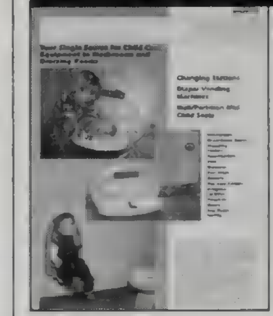
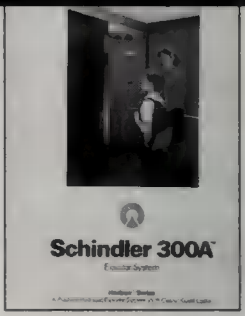
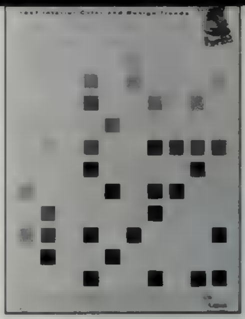


212. Diaper-change aid
A convenient amenity for public washrooms, the Diaper-Depot is an unobtrusive oval shape that is flush-mounted on 16- or 24-in. o.c. stud walls, or by toggle bolts on a hollow wall. Closed, it meets ADA projection limits; made of HDPE in a choice of ivory, mauve, gray, or white. Custom colors available. 800/290-0278. Safe-Strap Co., Old Tappan, N.J.



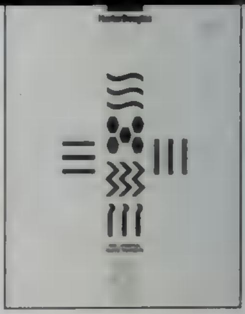
213. Elevators for schools
A color booklet covers Schindler's 300A elevator line, three lifts with building-type-specific design and control options. The Horizon series a single-car hydraulic elevator for u to four levels; cab and weight features meet the operational needs of small office buildings, clinics, schoo and churches. 201/984-9500. Schind Elevator Corp., Morristown, N.J.

214. Adjustable task seating
A brochure describes Sensor, Criterion, and Rapport, three lines of highly adjustable chairs "that support the most demanding work environments," and meet different body-type and task-specific adjustment needs. Also, a web site that discusses workplace issues: http://www.steelcase.com. 800/333-9939, x701. Steelcase, Inc., Grand Rapids, Mich. *



215. Carpet-color coordinatio
A 1997 Interior Color and Design Trends forecast, exploring the lates directions in commercial styling, helps architects and designers sele carpets and related finishes. Study available as a poster-format chart, well as on-line at the Antron site: htpp://www.dupont.com/Antron.htm 800/4DUPONT. Du Pont Co., Wilmington, Del. *

216. Molded-plywood seating
Illustrated catalog pages give dimensions and finish and upholstery options for two restyled Bodyform Chairs, widely specified for school and college use. Part of an extensive seating and table line designed by Peter Danko, Bodyform chairs are also available in a child's size. 717/244-5252. Danko Div., Persing Enterprises, Inc., Red Lion, Pa.



217. Window treatments
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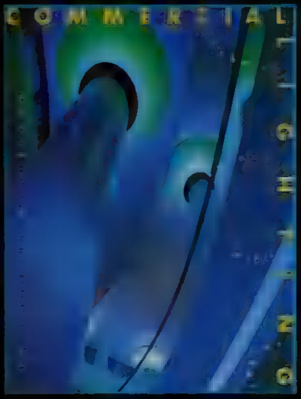

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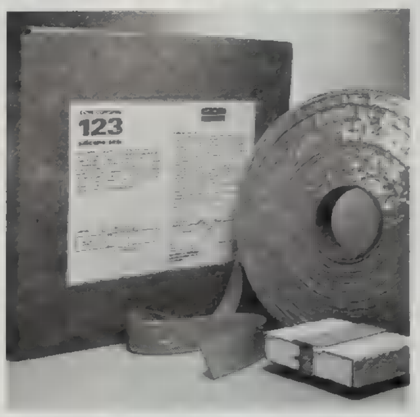
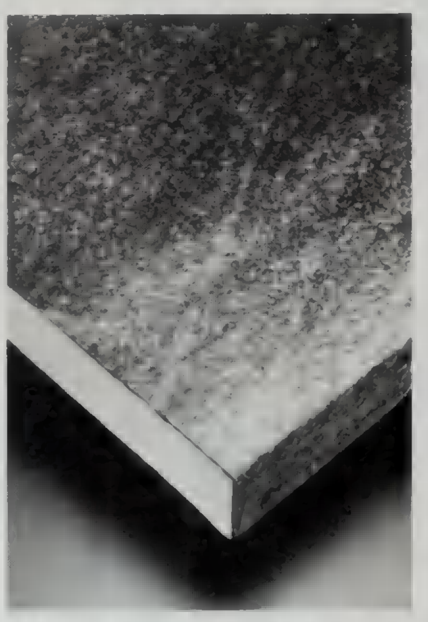
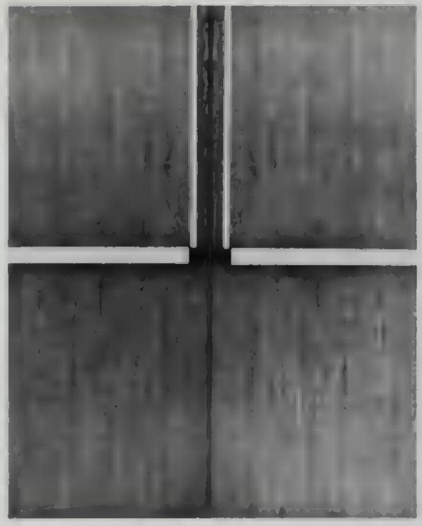


165. Joint-repair system
A preformed silicone seal, said to be an economical alternative to cutting out failed sealant in joints and recaulking, has been developed specifically for repairing EIFS walls, where sealant removal can damage panel edges. The extruded, highly elastomeric seal can also be used to weatherproof new and existing metal curtainwall panels, and seal parapet caps, coping joints, and window and skylight perimeters. Available in widths from 1- to 6-in., the seal spans joints, and is bonded to the substrate on each side with 795 silicone building sealant. Can also be placed within joints to minimize visual impact. Seal can be extruded in custom shapes and colors; standard colors are white, black, gray, bronze, sandstone, and limestone; can be overcoated. Dow Corning, Midland, Mich.



166. Bitumenous-roof insulation
A rigid insulation with an impact-resistant surface, Fiber Glass boards can be used as a substrate over flat or low-slope nailable, non-nailable, and metal roof decks, and are said to be flexible enough to conform to minor deck and membrane irregularities. Intended for use with built-up and modified-bitumen roofing membranes in both new and reroofing applications, insulations are UL-classified and FM approved when installed as directed. 800/653-3103. Schuller International, Inc., Denver.

167. Multifunction plotter
Capable of printing or copying two E size drawings per minute, Océ's 9400 plotter is said to be an "affordable" (priced under $30,000) multifunction device for smaller offices. It plots, scans, and copies, replacing three separate units; its electrophotographic technology saves power and eliminat warm-up time requirements. Up to 1 copies can be printed from a single scan; check copies are unnecessary, a the machine automatically applies adaptive contrast-level adjustments. 800/714-4427; E-mail:Oce9400 @aol.com. Océ-USA, Chicago.



168. Uncluttered exit rod
A new vertical-rod exit-device config ration, 8100T/3100T hardware needs top rod only, avoiding possible ADA appearance concerns with accommodating the bottom strike in flooring. Listed by UL for life safety (8100T) and fire rated (3100T), the devices eliminate the bottom rod by using a secure top bolt and strike that interlock strongly enough to pass burn, hose, and other test loads on both metal doors (90 minutes) and wood doors (20 minutes). Available in a choice of 10 architectural finishes. 310/699-0511. Adams Rite Mfg. Co., City of Industry, Calif.

Continued on page 156

Calendar

August 5-September 13
Photographic exhibition of the 1996 AIA Honor Awards at The Octagon, 1799 New York Ave., NW, Washington, D.C . 20006. Fax 202/879-7764 for more information.

August 6
"An Evening with Frank Lloyd Wright," a one-man performance featuring Lyman Shepard at the National Building Museum, Washington, D.C. Call 202/272-2448, fax 202/272-2564 for details.

September 28-30
The Door and Hardware Institute's convention and exposition takes place in Cincinnati. Call 703/222-2010 or fax 703/222-2410 for more information.

September 25-29
"Frank Lloyd Wright's Influence on Architecture in the Northwest," to be held in Seattle, will feature authorities on FLW; comments from architects such as Frank Gehry; and tours of houses not usually open to the public. Sponsored by the Frank Lloyd Wright Building Conservancy; call [illegible] 1786, fax 312/663-1683 for details.

October 16-20
Three exhibits and conferences,"Restoration/Chicago," the National Trust for Historic Preservation, and the Fall Antiques Show, will run in conjunction at Chicago locations: the Navy Pier and an adjacent exhibit hall for the Restoration and Antiques events, the Palmer House Hotel for the National Trust Conference. Call 508/664-8066, fax 508/664-5822 for further information.

Competitions

◆ The deadline for entries to the "Excellence on the Waterfront" awards is Aug. 1. There are seven project categories to choose from as well as a Waterfront Plans category. Call 202/337-0356 or fax 202/625-1654 for details.

◆ Entries for Wolverine's annual Finish First Exterior Design Contest must be postmarked by August 31. Submitted projects must have been completed between Jan.1, 1995 and Aug. 31, 1996, using at least one Wolverine vinyl exterior product. For information or an entry form, call 800/521-9020.

◆ Submissions to the Boston Society of Arc tects' annual competition, "Unbuilt Architecture," are due by Sept. 19. The contest is open to all practicing architects, architecture educators, and students throu out the world. Call BSA at 617/951-1433 ex 232 for details.

◆ Entries for the Sapporo (Japan) Dome Design and Build Competition (a covered stadium for soccer games) must be receive by Aug. 20. Fax: City of Sapporo 81-11-211 3030, phone 81-11-222-3076 for further information.

◆ The 1996 San Francisco Prize, a competition for the redesign of the plaza at the Phillip Burton Federal Building, will awar the winners a stipend to pursue further development of their winning project. Submissions are due Aug. 29. Fax Paul Andra Competition Project Manager, General Se vices Administration, 415/522-3316, for details. ■

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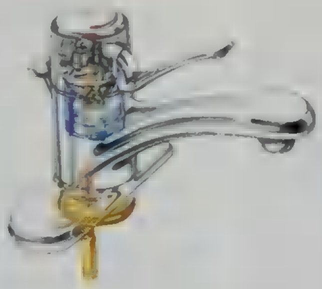

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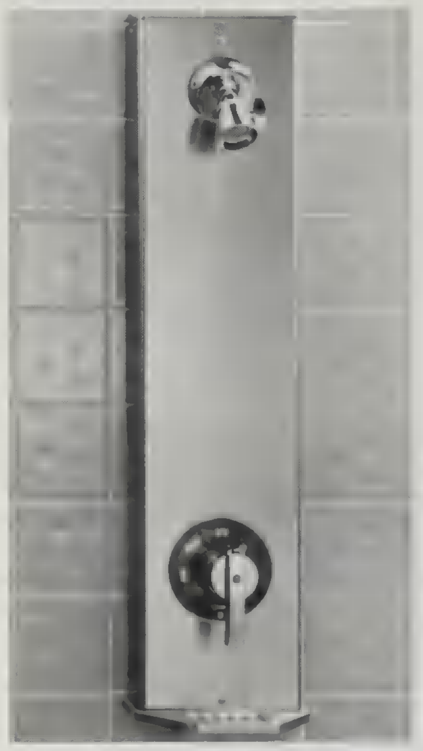
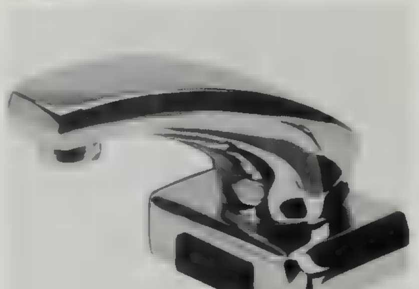
New Products

continued from page 154



169. Shower-control upgrade
The Hydropanel II adapts to institutional showers where in-wall piping doesn't exist. The stainless-steel module conceals mixing valves (either pressure-balance or thermostatic anti-scald) and simplified piping, and offers several control-handle and shower-head options. 708/673-6700. Powers Process Controls, Skokie, Ill.



170. Hands-free faucets
Sensorflo faucets are said to have several features that make installation easier, such as brass plumbing connectors that swivel and fail-safe low-voltage couplings for the infrared sensors. For public facilities, faucets can save as much as 85 percent of the water consumed by conventional faucets. Sanitary in use; meets ADA accessibility guidelines. 302/764-9100. Speakman Co., Wilmington, Del.

171. One-piece, low volume
One of three new contemporary-styled toilets from this Japanese manufacturer, the Prominence toilet (right) was designed by Ayse Birsel, and will accommodate the bidet-like Zoë seat as well as standard elongated seats. The push-button-operated siphon-jet gravity flush needs 1.6 gallons of water; all interior and exterior surfaces (even the back) are glazed. Meets the most stringent state and local codes. Brochure details all models, available in round- and elongated-bowl versions. 714/282-8686. Toto Kiki USA, Inc., Orange, Calif.

172. Low-profile toilets
A one-piece, 1.6-gallon toilet with a gravity-operated flush, the Rialto Lite (shown left, with bidet) is described as "priced to fit most any budget." The water closets stand under 23-in. tall, allowing vanities to extend over the toilet tank if desired for extra counter space. Fittings such as flapper valves resist aggressive water; china available in many Kohler colors. 414/457-4441. Kohler Co., Kohler, Wis.

173. Child-size washfountain
The low-maintenance, space-saving Express lavatory is now made in a lower-height "Junior" version for day care centers, elementary schools, and other children's facilities. Units can b ordered in two- or three-child configu rations; all have no-touch metering faucets and need only one set of plumbing connections; integral soap dispensers are optional. 414/251-6000 Bradley Corp., Menomonee Falls, Wi

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onry. Wood cladding: Architectural Millwork,
Wood-framed windows: Weather Shield, Inc.
d entrances and interior doors: Weyerhaeuser.
ksets: Marks U.S.A. Columns: Dupuis; Arban
erior); Hartmann Sanders (interior). Custom
dwork: Key Wood Working; Architectural Mill-
k, Inc. Resilient flooring: Forbo Industries
rmoleum). Carpeting: Lees Commercial;
anson; Stark. Exterior fixtures: Michaels
nting. Interior lighting: Baldinger.

es 80-83
a Italiana, Columbia University
trick White Burtis, Architect
d windows and exterior doors: The Woodstone
Laminated-glass lightbox: fabricated by The
y Art Glass Studio. Glass: Viracon. Interlayer:
nsanto (Opticolor). Laminated glass at stair-
: Sentinal Group. Statuary White marble: Port
ris Tile & Marble Corp. Stair-step lights: Cole
tom); Bega. Metal doors: Acme Steel Door.
er handles: Modric; Omnia. Closers: LCN.
inetwork: Bauerschmidt & Sons. Exterior
naires: Spring City. Carpeting: Durkan; Karastan. Tables and desk chairs: Vecta. Conference table: Poltrona Frau. Side chairs: ICF. Louvered fluorescents: Linear Lighting. Downlights: Edison Price. Special metallic paint: DuPont; Crescent Bronze Powder Co. Sconces and chandeliers: Artimede (VeArt).

Pages 84-85
Psychology Building, Washington University
Skidmore, Owings & Merrill, Architect
Granite: Cold Spring Granite. Limestone: Bybee Stone Co. Slate roof shingles: Evergreen Slate Co. Windows: Winco Window Co. Glazing: HGP Industries. Terrazzo: National Terrazzo & Mosaic Associates.

Pages 86-91
Engineering Research Center, University of Cincinnati
KZF, Architect and Engineer
Michael Graves, Associate Architect;
SH&G, Associate Architect and Engineer
Precast: Southeast Precast Corp. Brick veneer: Glen-Gery. Stone: Briar Hill. Aluminum-composite panels: Alply. Copper cladding and standing-seam roof: Overly Mfg. Co. Single-ply roof: Carlisle Syn-Tec. Windows: Wausau Metals. Glazing: Viracon. Metal doors: Steelcraft. Rolling doors: Kinnear. Acoustic ceilings: USG Interiors, Inc. Slate flooring: Vermont Slate. Laminate surfaces (casework): Wilsonart; Formica Corp. Paints: Glidden. Wall tile: Dal-Tile. Carpeting: Patcraft. VCT flooring: Armstrong World Industries. Elevators: Dover. Fluorescent lighting: Lithonia.

Pages 92-97
Tomanek Hall, Fort Hayes State University
Hay, Kansas
Horst, Terrill & Karst, Architect
Stecklein & Brungaradt, Associated Architect
Limestone: Harding & Cogswell Corp. Curtain wall, windows, and entrance: EFCO Corp. Metal roofing: MM Systems Corp. EPDM roofing: GenCorp. Glazing: Libbey Owens Ford (Solar Bronze). Tile flooring: Summitville. Resilient flooring: Azrock. Lighting (all interior fluorescent): Lithonia. Laboratory ceilings: Armstrong World Industries. Casework: Fisher Hamilton Scientific. Paints and epoxy coatings: Sherwin Williams. Wall-mount exterior lighting: Devine. Site furnishings: Landscape Forms, Inc.

Pages 98-103
Memorial Hall, Harvard University
Venturi, Scott Brown and Associates, Architects
Single-ply roof: Firestone Building Products. Annenberg Hall—Chairs: Eustis Enterprises. Tables: Charles Web. Chandeliers: Baldinger. Loker Commons—seating: KI (Verso Poly chair). Downlighting: Staff. Linoleum: Forbo. Carpeting: Karastan. Ceilings: Alpro. Cabinetry: Anthony Galluzzo. Paints: Sherwin-Williams. Laminates: Wilsonart. LED displays: Sunrise Systems. ■

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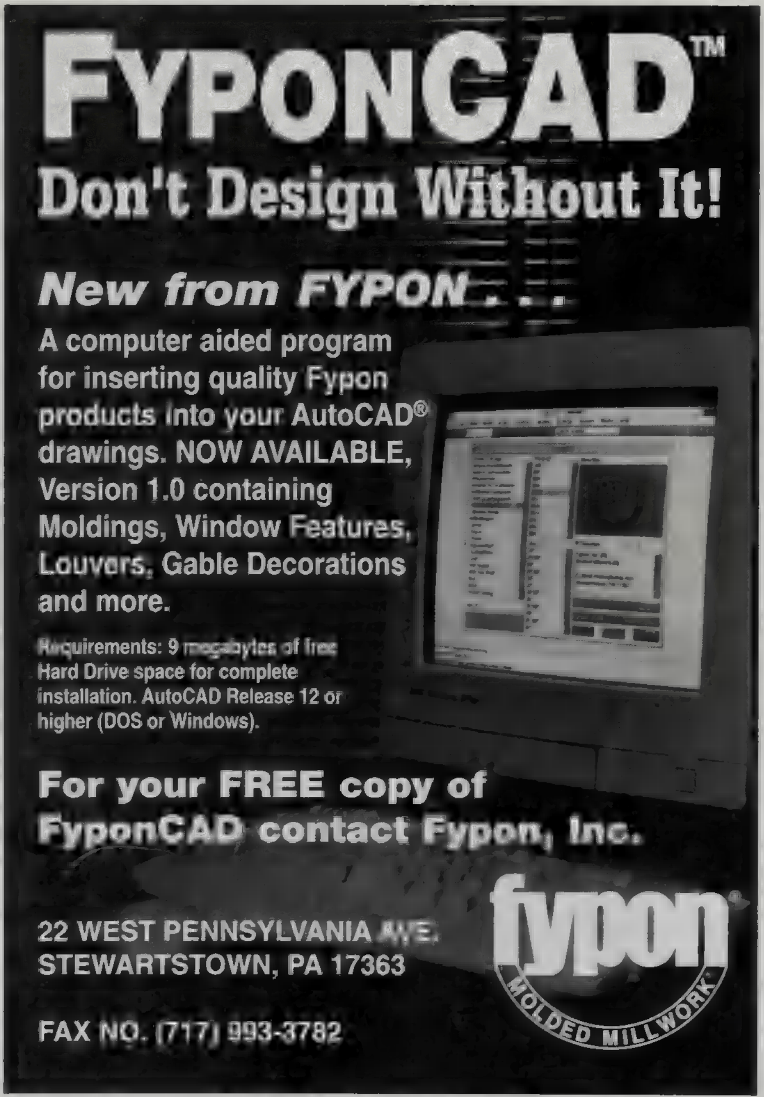

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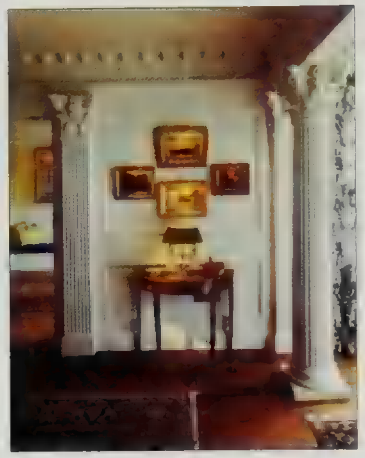

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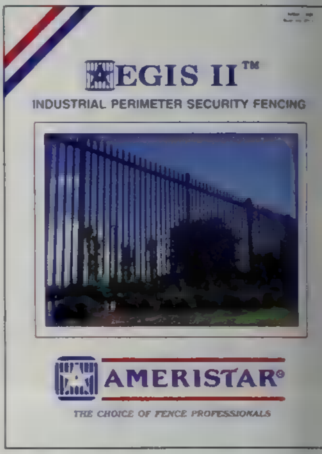
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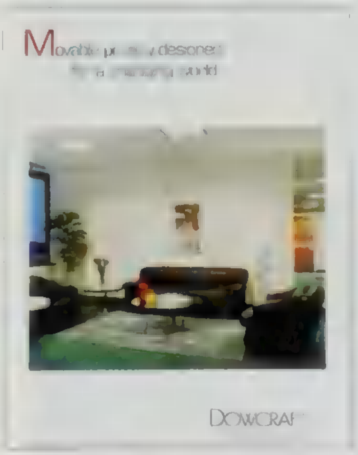

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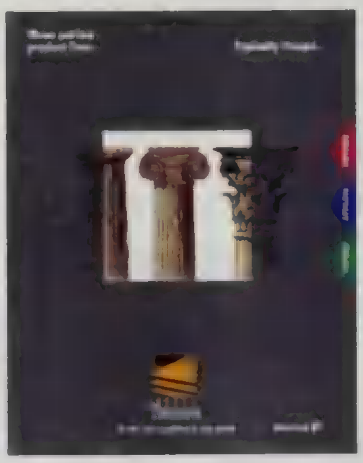

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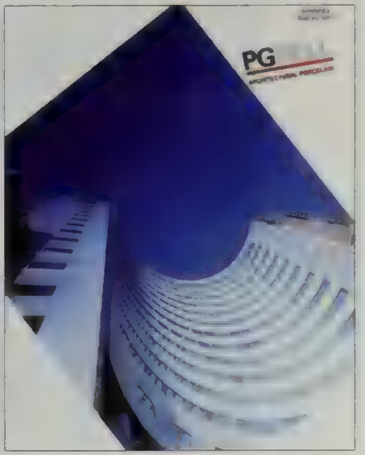

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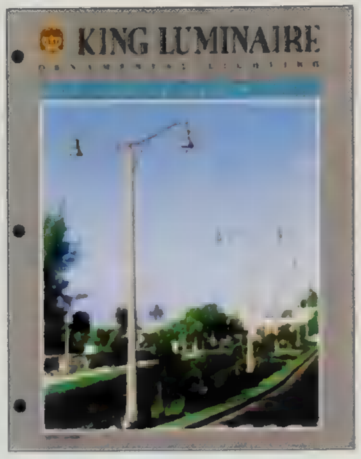
Award-winning DataCAD allows you to professionally draft, edit, and prepare precision construction documents. From 2D drawing to 3D modeling, DataCAD offers effective and affordable solutions for designers needs.

Cadkey Inc.,
4 Griffin Road,
Windsor, CT 06095.

Circle 90 on Inquiry card

Manufacturers' Spotlight

Fixtures & Poles

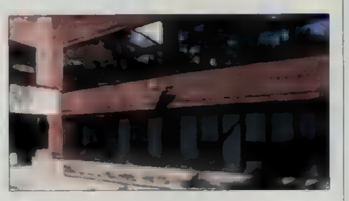


King Luminaire combines the great photometrics you need with the quality and appearance your project must have. Engineered to provide maximum lighting performance with minimal long term maintenance, King Luminaire fixtures and poles offer versatility, quality and a long, long service life. We specialize in buyer satisfaction. Call us at 1-800-268-7809.

King Luminaire Co., Inc.

Circle 91 on Inquiry card

Maintenance-Free Louvered Glazing



Custom designed **VISION CONTROL** consists of pivoting blinds, manually operated or motorized, **HERMETICALLY** sealed between glass of various shapes and types. **Dust-free**, **CORD-FREE** and **MAINTENANCE-FREE**. Provides privacy, hygiene, control of light and sound. Ideally suited for sloped glazing, interior partitions, windows and doors in classrooms, laboratories, conference and computers rooms, libraries, gyms and auditoriums.

UNICEL

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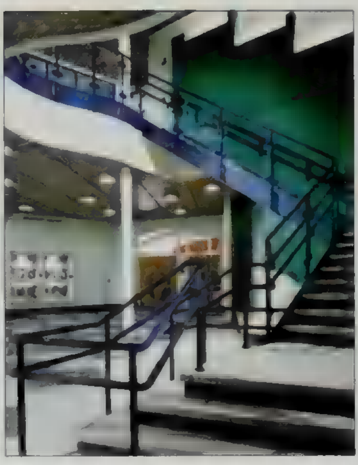
W&W Sales Ltd.



NT Normbau Nylon Railing Systems by **W&W** come in standard and custom designs to suit virtually any application. They're easy to clean, sanitary and never need repainting. NT Nombau rails are available in sixteen beautiful colors. Round, friendly shape complies with all ADA requirements. All system components are connected internally ensuring a neat, safe and secure installation.

W&W Sales Ltd.

Circle 93 on Inquiry card

Atlas Rolling
Counter Shutte

Atlas Counter Shutte
miniature rolling
designed for small op
like cafeterias, check
and ticket offices. Th
manufactured in la
non-labeled, and inte
frame shutter versior
manual, crank, or moto
ation. Atlas Counter S
are available in a var
materials and f
including clear ano
bronze painted alur
primed galvanized stee
less steel, and wood.

Atlas Door Corpora

Circle 94 on Inquiry card

New Fireplace Tested as a Wall Furnace

Heat-N-Glo Fireplace Products has taken its direct-vent technology and incorporated it into a new high performance fireplace. Model 6000 Supreme is a high efficiency fireplace (thermal efficiency up to 74%) and has a AFUE (Annual Fuel Utilization Efficiency) rating of 63%. Also, the 6000 Supreme is standard with a variable regulator to adjust the flame and BTU input with the turn of a dial. Heat-N-Glo, 6665 West Hwy 13, Savage, MN 55378, 1-800-669-HEAT.

Heat-N-Glo

Circle 95 [illegible] Inquiry card

Fire Retardants and Preservatives

Hoover Treated Wood Products' new 12-page Sweet's catalog features Pyro-Guard third generation interior fire retardant lumber and plywood for roof sheathing and other structural uses. Exterior Fire X FRT lumber and plywood for decks, balconies, siding and other outside uses, and CCA preservative treated lumber and plywood that's kiln dried after treatment.

Call 1-800-832-9663.

Hoover Treated Wood

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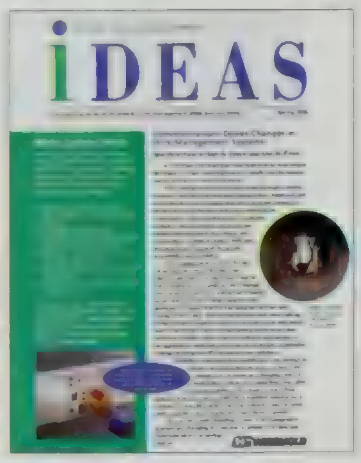
Discover Better Ways To Design In Flexibility And Accessibility



Modern Buildings require modern wiring solutions. That's what Wire Management Ideas is all about. Case histories. Research reports. Emerging trends. Product news and reviews. Everything you need to "future proof" your buildings. And make your job easier.

For your complimentary subscription circle the inquiry card.

The Wiremold Company

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Patio Enclosures,

NEW BROCHURE de
many styles of
Manufactured Su
which allow the ar
contractor or glazi
sunrooms into many
without expensive re
Products include Sc
Sloped Glazing,
Doors/Windows, Ye
Enclosures, Three-se
closures, Screen En
Greenhouses, and
Blinds and Shades.
installation available.
Call 800/468-0720, E

Patio Enclosures, I

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anufacturers' Spotlight

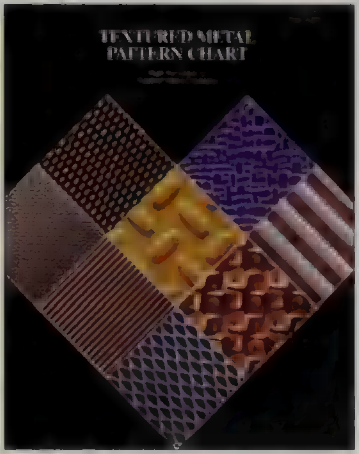
High Performance Drop Diffuser System

Exclusive Air Diverter design by Custom Curb, Inc., provides super-low resistance, quiet operation and excellent air distribution. It reduces installation costs and eliminates expensive duct runs. Offers maximum comfort and efficiency in ceilingless applications such as retail/outlet stores, manufacturing plants and other places where air distribution poses problems. Factory assembled. Various models offered including Low-Profile. 1-800-251-3001.

Custom Curb, Inc.

Circle 99 on Inquiry card

Textured Metals



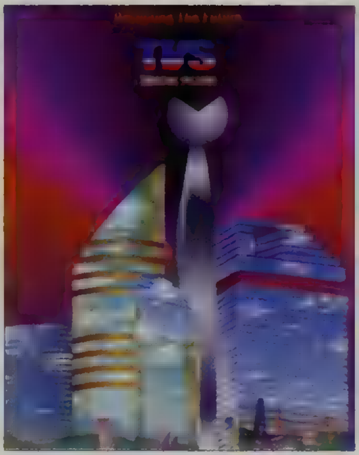
Rigid-Tex® metals combine beauty and durability in any interior or exterior applications. Dozens of patterns to choose from, including custom designs. For elevator doors and interiors, column covers, walls, ceilings, entrances, signage and trim. Available in a wide selection of metals, colors, finishes, gauges and sizes.

Rigidized® Metals Corp., 658 Ohio St., Buffalo, NY, USA 14203-3185, (800) 836-2580

Rigidized Metals Corp.

Circle 100 on Inquiry card

Automated Vacuum Transport Systems



Waste and/or soiled Linen

- Perfect for large hospitals and similar buildings that serve thousands of people
- Improve the building environment, management, and maintenance
- Full-vacuum and gravity/vacuum tecnology
- Custom design each system to building specifications

Transvac System, Inc.

Circle 101 on Inquiry card

Complete 2D and 3D Architectural Software

Chief Architect 4.0 is an extremely powerful architectural design program which is also very easy to use. Quickly create the 3D model using objects (walls, windows, doors, cabinets, etc.). Customize the shape, angle, door style, 3D patterns, roof style, etc. Automatically generate elevations, cross sections and 3D views, then send the views to multiple layout sheets for assembly. Add extra details using CAD, then print the final drawings.

800-482-4433
208-664-3854.

Chief Architect

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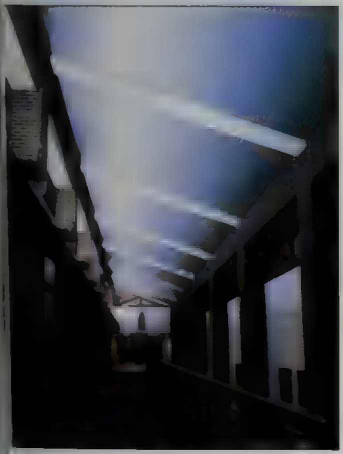
LUXALON® Linear Metal Ceilings



UXALON® Linear Metal eilings, a Hunter Douglas roduct, are prominently isplayed at Harper College Palatine, Illinois. A Wide election of profiles and arrier options offer omplete design flexibility. 30 colors, ROUND EDGE, QUARE EDGE, and V-ROOVE (featured) profiles nhance both the design nd acoustical perforance of any space.

Call 800-366-4327.

unter Douglas

cle 103 on Inquiry card

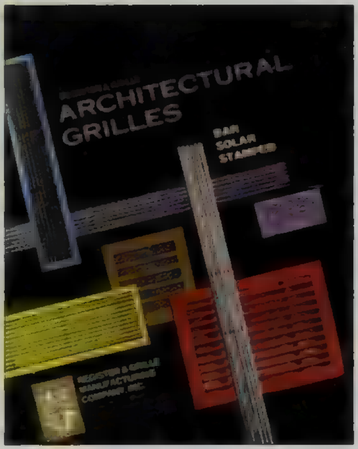
Classic Columns by Melton Classics

From the Clear All Heart Redwood Classic™ column to the DuraClassic™ Poly/Marble column to the FRP Classic™ Fiberglass column cover to a full line of stain-grade columns, Melton Classics offers a product for every architectural millwork need. Constructed in keeping with the Classic Orders of Architecture, the Melton Classics column line is second to none in quality, authenticity, availability and tradition - and yet is affordably priced. Call us toll-free at (800) 963-3060 for a free catalog or quotation.

Melton Classics

Circle 104 on Inquiry card

Decorative Grilles



Unusual visual effects emerge when our grilles are designed for area effects. Versatility is the theme. R&G offers architects and interior designers many ways to express the changing forms of metal with the integrity of R&G's architectural grilles. Custom or standard finishes are available plus any grille can be made in matching color to blend with your decor. 202 Norman Ave., Bklyn. NY 11222. 800-521-4895. Fax: 718-349-2611.

Register & Grille Mfg., Co.

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OSB
Performance By Design

Virtually every new home built today incorporates Oriented Strand Board (OSB), the fastest growing structural panel. OSB affords a greater range of uses and flexibility because it's *engineered* to perform. Learn about OSB through SpecRite, the Structural Board Association's new software program for specifiers. It's free!

call (416)730-9090 or fax (416)730-9013.

Structural Board

Circle 106 on Inquiry card

Manufacturers' Spotlight

To Advertise: Call 1-800-544-79
Fax: 212-512-2074

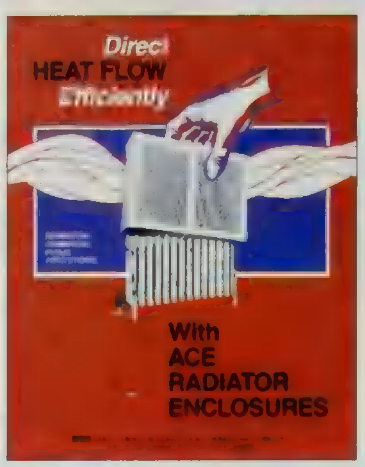
The Bilco Company

Bilco
Seventy Years of Innovation & Service
Ladder Safety Posts · Roof Scuttles · Automatic Fire Vents · Floor, Vault and Sidewalk Doors · Ceiling Access Doors · Basement Doors

The Bilco Company announces the availability of its full 1996 catalog featuring roof scuttles, fire vents, floor, vault and sidewalk doors and the LadderUP (R) safety post. This 24-page catalog also features the company's new fire rated floor door and new domed automatic fire vent. Catalog is complete with cross sectional details and architectural specifications on all products.

The Bilco Company

Circle 107 on Inquiry card



Manufacturers of custom metal cabinetry specializing in:

- Radiator enclosures for steam & hot water systems.
- Fin tube (baseboard) heating replacement covers.
- Fan coil replacement covers.
- Bookcases & shelving for schools.

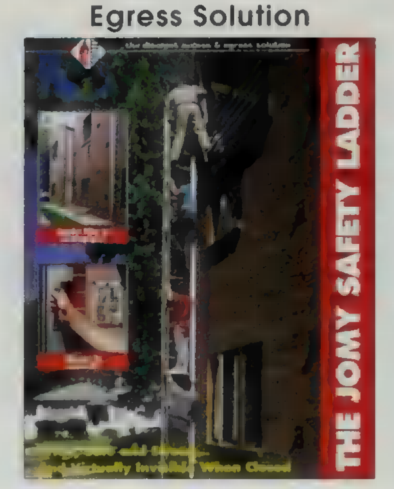
In business since 1934 serving residential, commercial, public & institutional building owners & renovators.

For a free brochure 1-800-543-7040.

Arsco Mfg. Company

Circle 108 on Inquiry card

The Discrete Access & Egress Solution



Security requirements, space constrains and esthetic considerations are a few of the problem solving applications for the JOMY Safety Ladder. The ladders discrete appearance makes it an ideal solution for access and egress requirements. The ladder looks like a drainpipe when close , but opens to a heavy-duty ladder with slip resistant rungs and a safety rail.

Jomy Safety Ladder Co.,
1728 18th St., Ste 201
Boulder, CO 80302
Phone: 800-255-2591

Jomy Safety Ladder

Circle 109 on Inquiry card

Parallel Design Partnership Limite

"ellen's brackets", an anodize aluminum shelving syste designed by M Ali Tay provides an elega alternative to existi bracket-and-track syster Cantilevered brackets come two sizes, for shelves 3/4 or 3 in. thick and 10-in. deep. W mounted tracks permit 1 1/2 adjustment of wood, glass, plexiglass shelves.

For more info phone
Prallel Design
Tel: 212/989-4959
Fax: 212/989-4959.

Parallel Design

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Furniture FLexibilty

RoomScape™ Allows For Student Resident Room Furniture Flexibility.

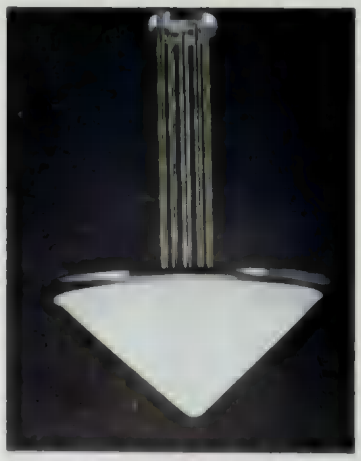
RoomScape is a flexible furniture management system that allows each residence hall room to be configured to fit individual needs & lifestyles. Components can be easily installed & rearranged without the use of tools. In its disassembled state, RoomScape is a compact storage unit.

For more information, contact
KI, PO Box 8100
Green Bay, WI 54308-8100
(800) 424-2432.

KI

Circle 111 on Inquiry card

Halos Series



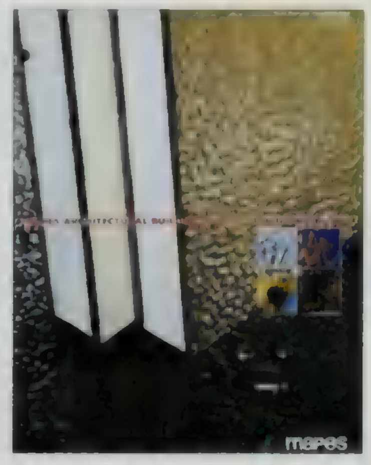
The Halos series is available in a variety of styles and finishes. Shown here is the HLN-3297 DP1 which is 32" in diameter and 38" in overall length. The etched acrylic donut above the spinning provides a luminous halo around the fixture. The finish is a combination of brushed aluminum and brushed chrome. The lamping is available in either energy saving compact fluorescent/incandescent.

The Original Cast Lighting Inc.
6120 Delmar Blvd.
St Louis, MO 63112-1204
Tel. 314/863-1895
Fax: 314/863-3278

Original Cast Lighting

Circle 112 on Inquiry card

Graffiti Proof Panels



Mapes Industries manufacturers a complete line of architectural panels with a grafitti proof finish of porcelain enamel. The panels are available in both porcelain on aluminum or steel in a wide variety of colors. The panel applications include window replacement, curtain wall, soffit and ceiling projects. The panels are an ideal solution for high traffic/abuse areas such as schools and institutional buildings. For a free sample to test, please

Toll for free
800-228-2391 or
fax 800-737-6756

Mapes Industries, Inc.

Circle 113 on Inquiry card

Conservatories

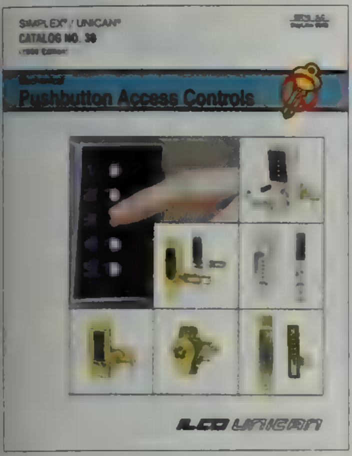
Amdega - Mac Conservatories' new brochure is now availa The Amdega line is rec nized for creating the fi traditionally styled conse tories since 1874. The Ma line is reminiscent of graceful & romantic struc of previous centuries. A range of designs and style residential and comme applications are featured.

Call 1-800-922-0110
for more information.

Amdega-Machin Conservato

Circle 114 on Inquiry card

Over One Million Locks in Use Worldwide!



We pioneered mechanical pushbutton access controls and continue to be the world leader in this type of security. Our locks help secure The Pentagon, U.S. and Canadian embassies, McDonalds Restaurants, plus major universities, banks, and airports around the world. We offer a wide range of models and styles to fit many applications. Most anything presently secured by a key can have the security and convenience of a pushbutton lock.

ILCO UNICAN CORP.,
Simplex Access Controls Division,
2941 Indiana Ave., Winston Salem,
NC 27105 U.S.A. Tel: (910) 725-1331
Fax: (910) 725-3269.

Unican/Simplex Access

Circle 115 on Inquiry card

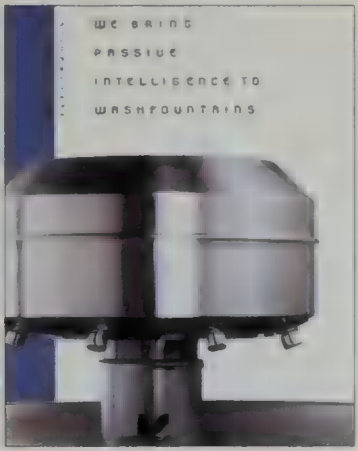
This unique dual-durometer system consists of a prefabricated rubber basemat covered by a 2 millimeter thick high quality seamless polyurethane top layer. Unlike fully poured-in-place or single ply surfaces, Regupol Multipurpose Sports Flooring guarantees uniformity in thickness and density giving the athlete a dimensionally stable platform for a safe and consistent athletic performance. The basemat durometer can be custom engineered during manufacturing to meet specified performance characteristics including those for basketball, volleyball, tennis, indoor jogging tracks, aerobics, physiotherapy and general use, including cafeterias.

Call 800-322-1923
for free information and samples.

Dodge -Regupol

Circle 116 on Inquiry card

SANISPRAY



The SANISPRAY electronic washfountains are equipped with INTERSAN's battery operated passive broad detection system. This passive detection system is the ideal solution for hands-free operation of water and soap, which prevents contact with soiled and/or contaminated fixtures. The system functions on human warmth, and is unaffected by skin color, darkness, sunlight, noise or foreign objects.

Intersan

Circle 117 on Inquiry card

The Soffi-Steel™ System

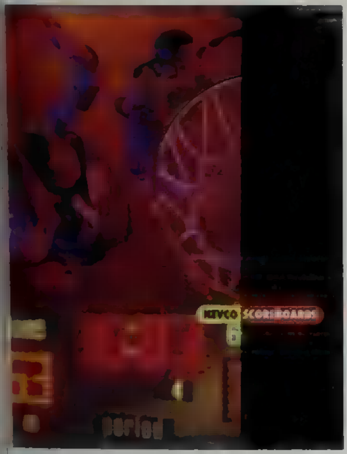
Grice Engineering, Inc. supplies prefabricated modular steel concealment enclosures/soffits for fire sprinkler piping, HVAC, and electrical wiring. The Commercial system provides concealment for educational facilities (schools, administration buildings, dormitories), hospitals, apartment buildings, and hotels. The Institutional system includes prisons, jails, and psychiatric wards. Both systems are custom designed to project specifications.

For additional information, contact Grice Engineering @ 800-800-3213.

Grice Engineering

Circle 119 on Inquiry card

Nevco Scoreboard Company



Nevco Scoreboard Company has been manuacturing scoreboards for ports since 1934. Our scoreboards are UL Listed/CSA Certified and are designed o fit your budget. We also offer a five year guarantee. e sure to get a copy of our atest free Catalog No. 62 eaturing our new scoreboard models before making your buying decion.

Phone: 800-851-4040,
Fax: (618) 664-0398.

Nevco Scoreboard Co.

rcle 120 on Inquiry card

STREETSCAPING
FOR THE TWENTY-FIRST CENTURY

Four Dozen Traditional Luminaire Styles

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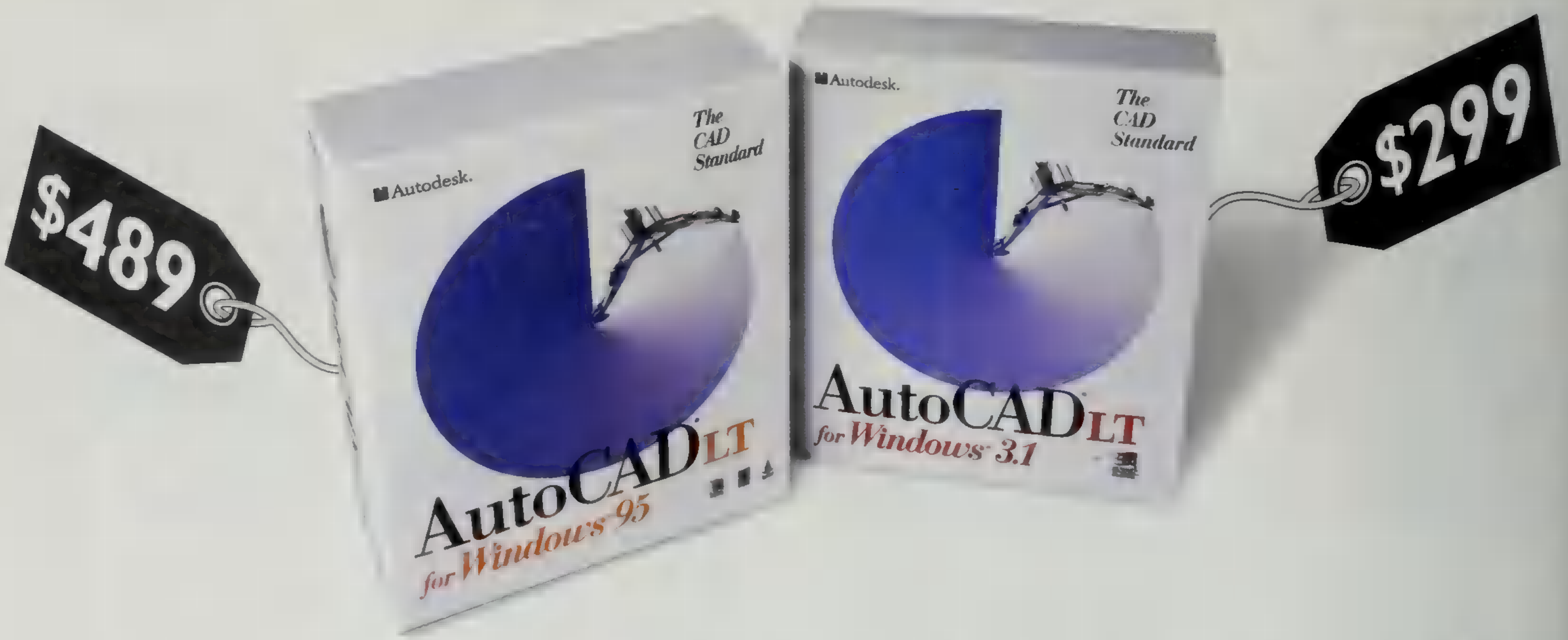
TrimbleHouse™

MANUFACTURERS OF ARCHITECTURAL LIGHTING SINCE 1962

4658 S. Old Peachtree Rd. / Norcross, GA 30071 / 1-800-241-4317 / FAX: 770-447-9250

Circle 34 on inquiry card



Prices include extras money can't buy.

What makes AutoCAD® LT so attractive isn't just the price, it's that it comes with peace of mind built in. Based on the industry standard, AutoCAD,® it's the only one of its kind that allows you to share files quickly and accurately with nearly 1.8 million AutoCAD and AutoCAD LT users worldwide. That means you can communicate ideas and iterations with just about anyone in the industry, whether they're clients, contractors or partners. You can't buy that kind of access, but you can get it free with AutoCAD LT. And when you do, you can rest assured you're investing in a product line that will grow as your business grows. So don't wait. The sooner you put AutoCAD LT to work for you, the sooner you'll see just how invaluable our extras really are.

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Designed for Microsoft® Windows® 95

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Provides all the benefits of Windows 95 and Office™ 95 compliance, including Windows NT™ support. Based on AutoCAD R13. Powerful CAD tools such as NURBS curves, advanced geometry and complex linetypes. Plus set-up wizards, a property painter and real-time pan and zoom make it easier than ever to use.

AutoCAD LT for Windows® 3.1

If you're not yet ready for the move to Windows 95, you can still reap the benefits of AutoCAD LT for Windows 3.1 (formerly known as AutoCAD LT Release 2) at a new low price. Based on AutoCAD R11 and R12.

True AutoCAD Compatibility

13 AutoCAD® COMPATIBLE

Other CAD packages claim to read and write DWG, but in reality they can only translate it. AutoCAD LT's native .DWG file format means that you can share files without worry. No long waits as your files load, no ballooning file sizes and no translation errors.

VISIT YOUR LOCAL RETAILER TODAY, OR TO RECEIVE YOUR FREE DEMOPAK, CALL 1-800-228-3601* AND ASK FOR DEMOPAK A137. TO UPGRADE CALL 1-800-435-7771 AND ASK FOR OFFER J23.

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AIA/Architectural Record Continuing Education

stions (1-4 refer to the NTT article on pages PR28 - 33; 5-6 refer to the Suzhou article on pages PR34 - 37)

at are three advantages of placing the NTT building's service
on one side of—rather than in the center of—the office area?
er: ______________________________

plain how the NTT project addresses the code considerations
e city's sunshine-access and seismic regulations and their
ll impact on the design.
er: ______________________________

scribe four innovations in the shell of the NTT building.
er: a. ______________________________
b. ______________________________
c. ______________________________
d. ______________________________

4. What other design efforts directly affect the NTT building's interior space planning and occupant functioning?
Answer: ______________________________

5. What key design element of the Suzhou project links the historic nature of the existing city with the new development?
Answer: ______________________________

6. What innovations improved on the existing Suzhou system and provide for communal amenities?
Answer: a. ______________________________
b. ______________________________

For answers turn to page 167

Important Information About Schuller Phenolic Foam Roof Insulation and Possible Steel Deck Corrosion

From January 1989 to February 1992, we produced UltraGard® Premier, a glass mat faced phenolic foam roof insulation, which is no longer manufactured by us.

Recent observations suggest that phenolic foam roof insulation contributes to the corrosion of steel roof decks. In extreme conditions, where insulation is wet or damaged, the corrosion reaction could progress to a point which could weaken or penetrate an area in the metal deck.

Therefore, where evidence of wet or damaged phenolic insulation exists, or severe deck corrosion is observed, care should be taken in operating equipment, moving heavy loads and walking across the roof.

If you have Schuller* Phenolic Foam Insulation on your roof, please call us at 1-800-345-9602

SCHULLER
Roofing Systems Division
Schuller International, Inc.
P.O. Box 5108, Denver, CO 80217

1-800-345-9602
Monday through Friday
9:00 a.m. to 3:00 p.m. (Mountain Time)

*Schuller phenolic foam insulation was formerly manufactured and marketed by Manville® Roofing Systems.

Circle 36 on inquiry card

It Was Rebellio

It Was Beautifu

Man, It Could Fl

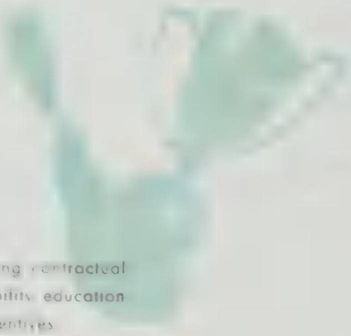
1950 Pierson Brothers Coupe

It was different by design.

The hot rod dared to be different with its voluptuous lines, irreverent colors and incredible speed. It changed the way we looked at transportation. It was different by design.

Once in a great while, an innovation comes along that changes the way we do things forever. All it takes is the ability to see ordinary things in extraordinary ways. That's the kind of visionary thinking that has made **DPIC** the innovation leader in professional liability insurance. **DPIC's** inventive solutions have changed the industry for good.

At **DPIC**, we find creative ways to help professionals—architects, engineers, lawyers and CPAs—limit risk and operate more profitably. We're imaginative. Sometimes even rebellious. That's what makes us different by design.



DPIC Innovation Highlights

In 1971 DPIC was founded, introducing contractual limitation of liability, professional liability education credit programs and early reporting incentives.

1971

[illegible] review [illegible] 1981

Mediation Works! incentive program 1988

Partnering incentive 1993

1974 [illegible] deductible option

TeamC[illegible] project insurance 1987

1989 Split limits option

DPIC Companies,
2959 Monterey-Salinas
Monterey, CA 93940-
PO Box DPIC, Monterey, CA
PH 800.227
Info@dp
http://www.dp

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Security Insurance Company of Ha
800.56

[illegible] • Security Insurance Company of Hartford • The Connecticut Indemnity Company
[illegible] DPIC Companies, Inc. • Photo courtesy of Petersen Publishing

Circle 37 on inquiry card

AIA/Architectural Record Continuing Education

tinued from page 165

swers

he placement of the core anticipates later building, mini-
ing future sight blockage problems, provides one
nterrupted space for offices on each floor, and allowed the
hitects to express the high-tech nature of the building.

he triangular design answers the code restriction of not
ding surrounding buildings more than three hours a day.
steel-framed structure with its round 31-inch-diameter
mns provides a seismic solution without impacting sight
s and spatial flow.

Slightly reflective glazing with aluminum curtain-wall
els coated with metallic-grey fluoropolymer paint express-
e high-technology purpose of the building.
Service components, expressed on the exterior, become
ries of sculptural elements rather than a continuous
k.

c. Beveled steel bands on the curtain wall around the mechanical rooms direct fresh air up, reducing water infiltration into the building.

d. Rows of projecting aluminum fins provide more responsive sun shielding.

4. Low partitions, a minimal number of structural columns, open views in the lounges, and an employee-controlled fan-coil air-treatment system that supplements the hvac.

5. Following the tradition of the community, new canals connect with the city's existing canal network, offering "garden and canal views" to every house.

6.a. A filtration system was included in the newly developed canal system to eliminate odors.

b. A semi-circular marina was developed as a social hub where the main canal arteries intersect.

Self-Report Form below

IA/CES Self-Report Form (FOR ARCHITECTURAL RECORD USE ONLY)

nber information:

AME FIRST NAME MIDDLE INITIAL OR NAME

UMBER

ram/project title: **Architectural Record: NTT Building, Tokyo; Suzhou Housing, July 96**

letion date: ______ / ______ / ______
MONTH DAY YEAR

ty Level (QL) of this program: These articles will give you a total of 2 LUs at Quality Level 1

ty Level for these articles is 1. (Refer to learning objectives on page 65). **Material resources used:** Journal articles

rogram addresses issues concerning the health, safety, or welfare of the public.

**by certify that the above information is true and accurate to
est of my knowledge and that I have complied with the
ontinuing Education Guidelines for the reported period.**

RE DATE

Send completed form to:

**University of Oklahoma, Continuing Education AIA/CES, Room B-4, 1700 Asp Avenue,
Norman, OK 73072-6400; fax, (405) 325-6965**
For additional information call (800) 605-8229

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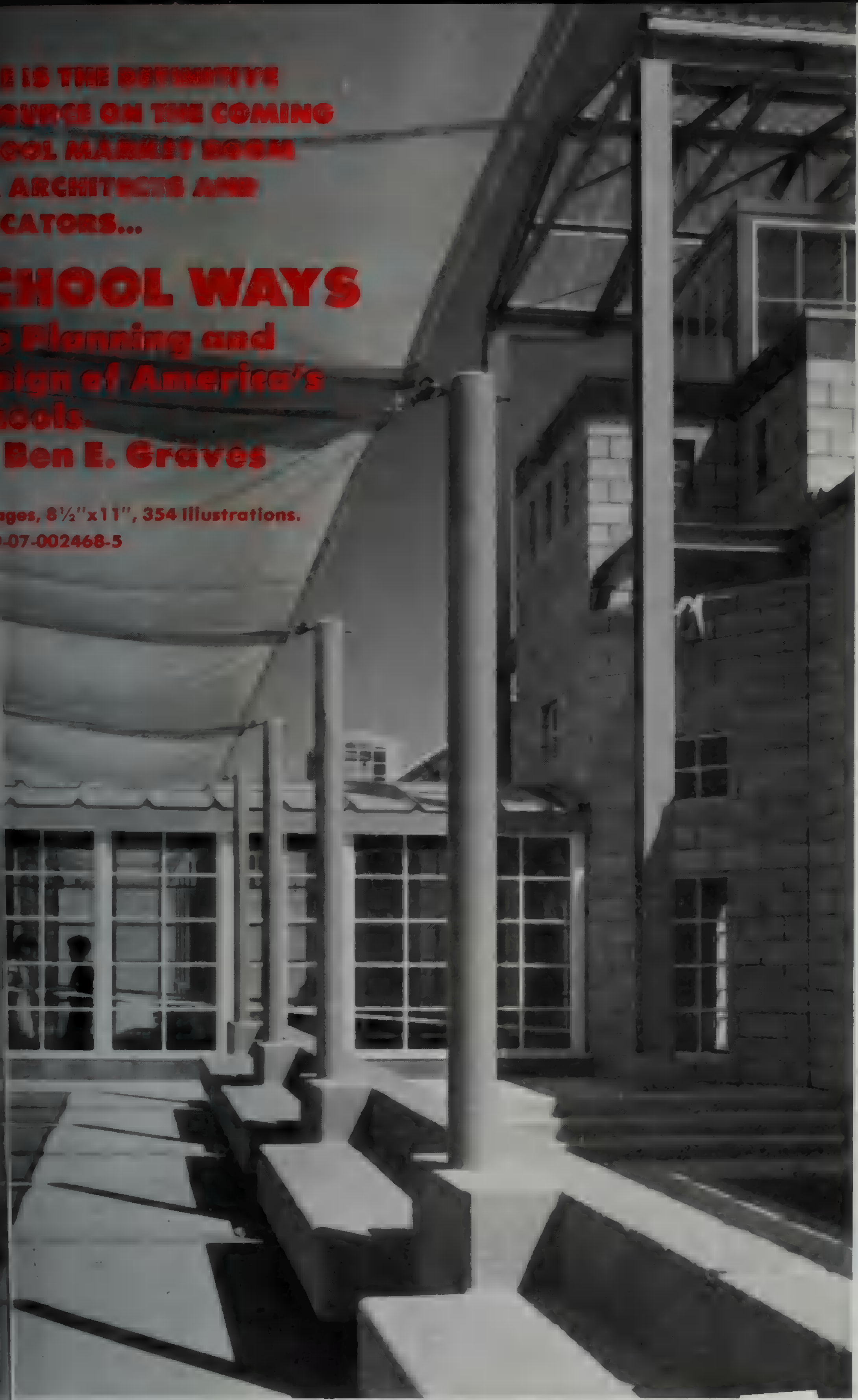

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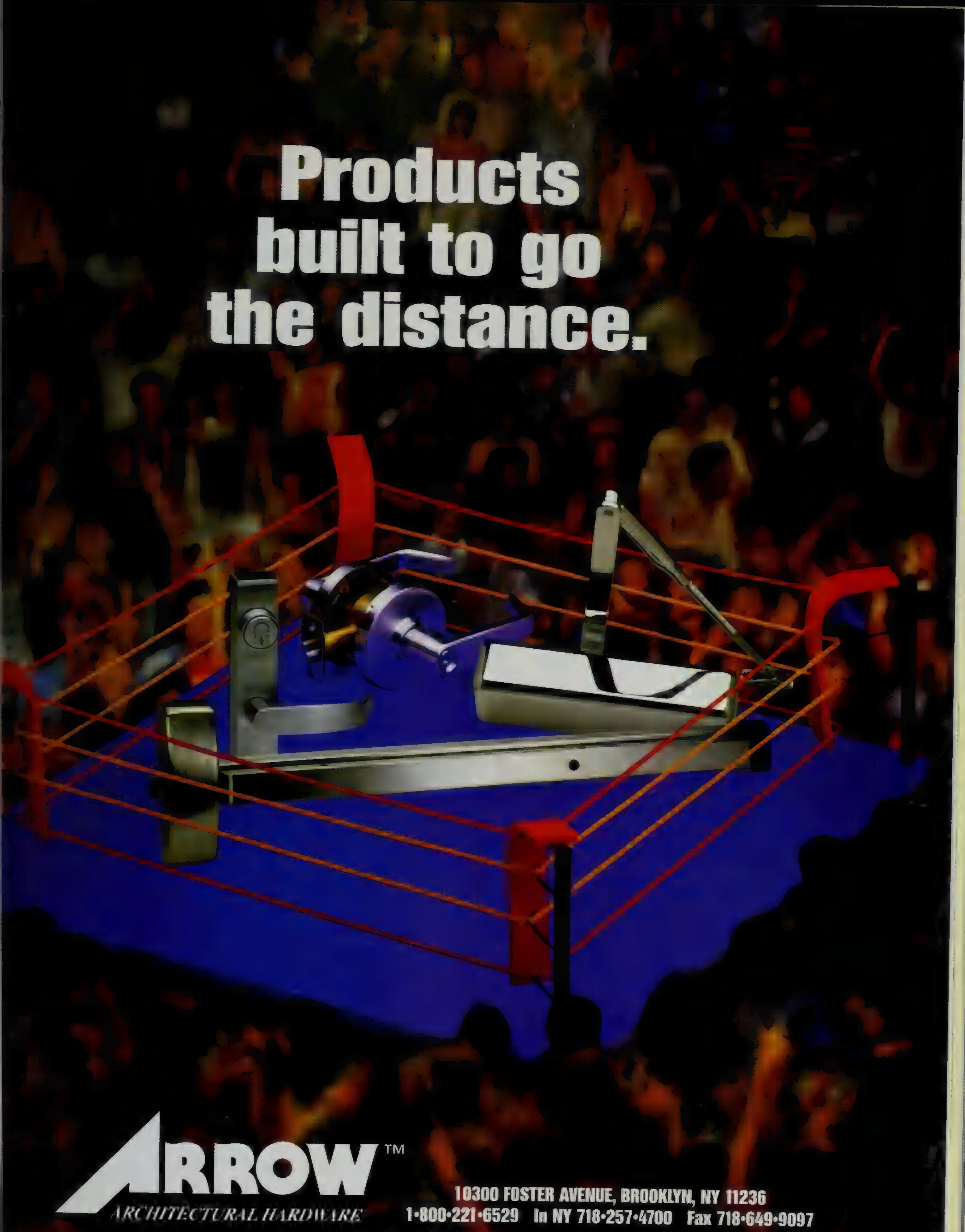

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The fact is, windows are not waterproof. And independent tests reveal that even perfectly installed windows can eventually leak. Factor in ineffective sealants and poor detailing and it's only a matter of time before water gets in.

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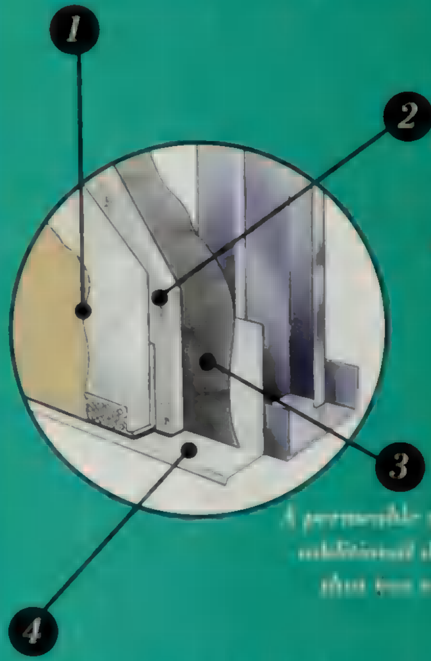

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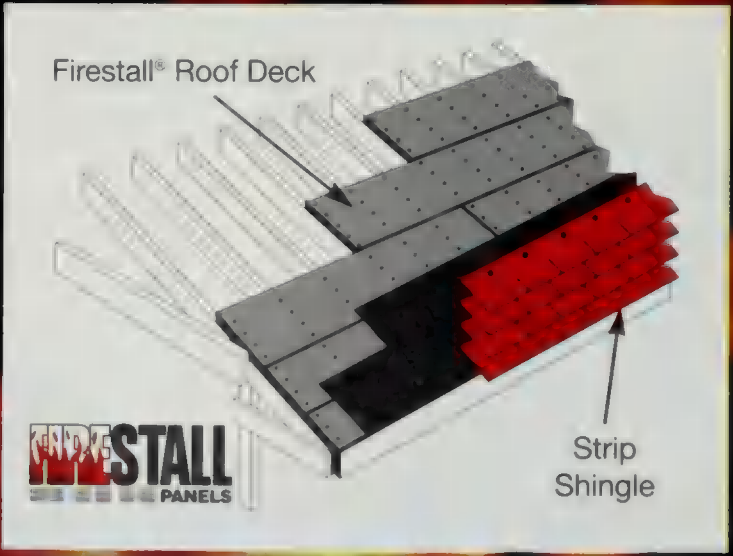

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usk in Denver. The clock at oors Field greets baseball fans at e stadium's main entrance. See ECORD's Building Types Study n sports facilities, page 110.

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our opportunity to identify the manu- cturers who provide excellence in uilding components and service pport (page 63).

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SUPPLEMENT ON LIGHTING INCLUDED WITH THIS ISSUE *(U.S. and Canadian copies only)*

Are HOUSES code-compliant?

I read someplace that in an effort to reduce the prevalent practice of using student/slave/"volunteer" labor in architectural offices, prize-winning firms were to certify they used only paid employees in the production of these winning projects.

Could this notion be extended to include confirmation that honors only be awarded to projects that meet current building codes? I realize that approach would have made the 1996 RECORD HOUSES issue rather sparse. My own tally from that issue, simply from cursory visual inspection of the photographs in the magazine: No handrails (2); inadequate guardrails (4); no guardrails at all (3); guardrails too short (1). That makes 10 violations in eight houses, and I was only looking at stairs! Is there some arrangement by which RECORD HOUSES are exempt from building codes under which the rest of us must practice?

Tom Hardy
Page & Turnbull, Inc.
San Francisco, California

RECORD presumes that houses completed and occupied by their owners are deemed by the entrant, the owner, and local officials as meeting local codes. We do not seek certification of compliance, however. Local codes, especially as they apply to private residences, vary widely. —Editor

Skyroof, not glass

[illegible]

September 25-29
"Frank Lloyd Wright's Influence on Architecture in the Northwest," to be held in Seattle, will feature authorities on FLW; comments from architects such as Frank Gehry; and tours of houses not usually open to the public. Sponsored by the FLW Building Conservancy. Call 312/663-1786, fax 312/663-1683 for details.

September 28-30
The Door and Hardware Institute's convention and exposition. Cincinnati. Call 703/222-2010 or fax 703/222-2410 for details.

October 2
American Friends of the Georgian Group will tour early private homes in New York State's Hudson Valley. Call 212/861-3990 for information.

October 16-20
Three exhibits and conferences, "Restoration/Chicago," the National Trust for Historic Preservation, and the Fall Antiques Show will run in conjunction at two Chicago locations: the Navy Pier and an adjacent exhibit hall for the Restoration and Antiques events, the Palmer House Hotel for the National Trust Conference. Call 508/664-8066, fax 508/664-5822 for further information.

November 2-3
The Institute for the Study of Classical Architecture and *Traditional Building* magazine are holding a seminar on "Classical New York, Classical America." On the first day, prominent professionals and educators will talk about subjects ranging from "Townhouse Design in New York (Mark Hewitt) to "The Archeology of New York" (Celia Bergoff, New York University) to "The Clubs of New York" (Gary Brewer, Robert A. M. Stern Architects). These lectures will be in the Tishman Auditorium, Vanderbilt Hall, NYU School of Law. On the second day, hands-on workshops, demonstrations, and walking tours will cover the Great Interiors of New York (tour), the Clubs of New York (tour). Drawing Classical Ornament (workshop), and the Classical Order of Architecture (workshop), among other topics. That day's activities take place at the Real Estate Institute at NYU's 11 West 42nd St. location. Registration is $95 per day, or $195 for both days. Call Judith Lief at 718/636-0788 for more information, or fax her at 718/636-0750.

November 7-9
Interplan '96 will hold its (formerly Designers Saturday) show at the New York Coliseum, with seminars and an interior-design and planning exposition. The A&D building also plans to expand exhibitor space at its West 58th St. location. Call 800/950-1314, ext. 2611 for more information.

November 13-15
"Architecture and Urbanism at the Turn of the Third Millenium" conference will be held at Sava Centar in Belgrade, Yugoslavia, presenting symposia on Society in Transition, Sustainable Development, Migrations, Architecture in Context, New Technologies, and Education. For details, fax Arkitonski Fakultet at 381-11-3224-122.

Through January 19, 1997
"Three Buildings by Frank Lloyd Wright: American Spirit Alive in Japan" traces the history of the only three non-U.S. buildings Wright designed and built: the Imperial Hotel, Yamamura House, and Jiyu Gakuen Myonichikan School. Through photos, drawings, models, and correspondence, the exhibition explores the context for each building. At the National Building Museum, Washington, D.C., 202/272-2448, fax 202/272-2564. ■

Competitions

◆ "Unbuilt Architecture" competition submissions are due Sept. 26. Entry fee is $50 for each submission. Call Boston Society of Architects, 617/951-1433 ext. 232, for details.

◆ A competition to design Greenport (Long Island, N.Y.) Waterfront Park and Harbor Walk offers up to $20,000 plus a commission to further develop the winning design. Registration closes Oct. 4; submissions must be postmarked by Nov. 8. Call 516/477-3000, fax 516/477-2488 for more information.

◆ Society of American Registered Architects (SARA) invites architecture students to submit work done in conjunction with a school or independently. Entrants must register by Oct. 6 and submit projects by Oct. 13. Call 708/932-4622 for details.

◆ Shinkenchiku Residential Design Competition entries, which will be judged by Jean Nouvel, are due Oct. 18. Contact Shinkenchiku-sha Co., Ltd., 31-2 Yushima 2-chome, Bunkyo-ku, Tokyo 113, Japan.

◆ Women in Architecture on AI chapter committees throughout Virginia are sponsoring a postcard-design nationwide competition, created to publicize the role of women in a non-traditional field. Entries can come from men and women both in and out of the profession. Fee fo submissions is $10, due Oct. 18. Postcards must be 4 in. by 6.5 in Individual or team submissions are accepted. Call 703/549-4856 for details.

◆ Competition packets for the 1996 Paris Prize in Public Architecture are available this month and will explain the theme of th year's project: Real Downtown Virtual Downtown, focusing on lower Manhattan. Call 212/724-7000, fax 212/366-5836 (the Van Alen Institute) for details. ■

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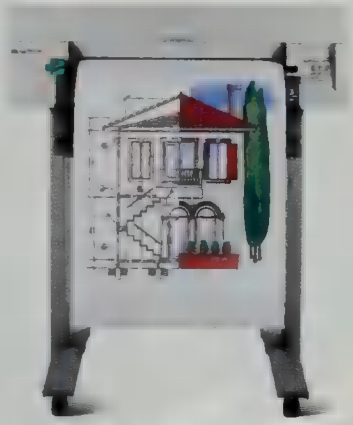

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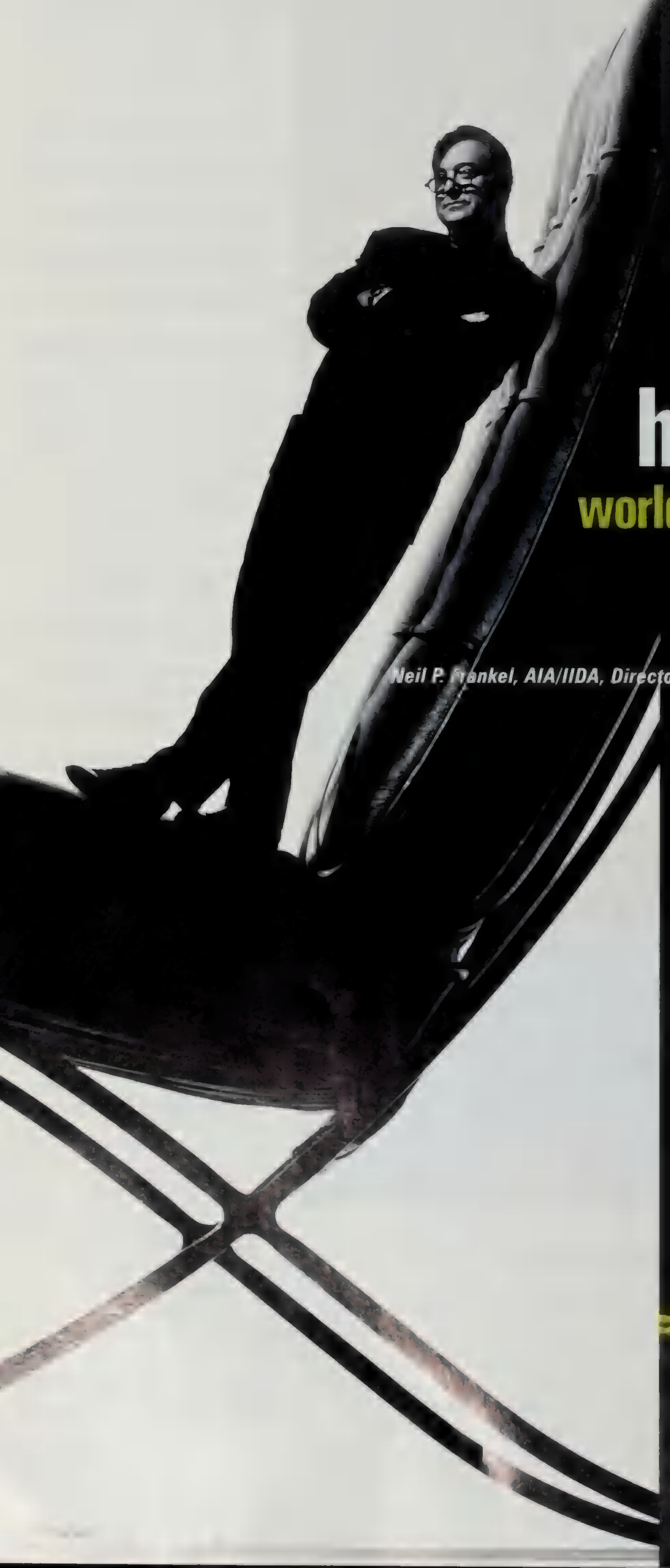

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Neil P. Frankel, AIA/IIDA, Director of Interiors, Skidmore, Owings & Merrill LLP, Chicago

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From the Publisher

It's A Team Effort

A great magazine is a dynamic and evolving enterprise, and so it is with ARCHITECTURAL RECORD. Since it all begins with readers' interests and needs, we thought you might be interested in an update of some of our activities on your behalf.

The announcement of our new strategic alliance with the American Institute of Architects stimulated a wonderful sharing of ideas on how we can serve the profession, the public, and the range of professionals involved in the built environment. First and most important, we expanded our efforts to hear the concerns of our constituency. This included formal research, focus groups, and roundtable discussions. Thank you to the many people who participated in this process. We learned so much, including how easy it is to get our audience to express opinions! We were struck by the passion, intelligence, and sense of social responsibility expressed by the participants. The mix of talents in business, science, and art in those we serve is truly extraordinary, and provides a challenging range of interests and concerns for our magazine to address.

The effects of this activity will be seen most dramatically in the January, 1997 issue when the next evolution of ARCHITECTURAL RECORD debuts. You'll receive a magazine designed to stimulate and inform you with its content, focus, and graphics. And it is the result of the fine work by the folks you see pictured on this page. We're blessed with an extraordinary team of editors. Many of you have met Karen Stein, who identifies important projects and this year developed the very exciting quick-time VR CD-ROM of the RECORD HOUSES issue. Or James S. Russell, who specializes in technology and practice issues, and is currently developing our Internet Website. Charles Linn is our RECORD LIGHTING specialist; Cliff Pearson, our global guru; Joan Blatterman, products specialist. The other people you see here include the wide range of professionals from graphic design, to production, to distribution, to research, who all contribute in such an important way to our quality and service. In addition to this group, we're very pleased to include as part of our team the Pulitzer Prize-winning critic Robert Campbell, among other prominent contributing editors and correspondents around the globe. Of course, missing from this picture is our display advertising sales team. They're where they should be—in the field working with manufacturers to create effective communications with you.

© Charles Linn photo

Regrettably, this issue marks the departure of Stephen Kliment, editor of the RECORD for the past six years. We're so grateful to Steve for his important contributions and wish him all the best in his future endeavors. Steve has left behind a fine legacy in the team that he built. A new editor will be announced shortly and together we look forward to entering our 107th year of publishing with enthusiasm, creativity, and gusto.

Our goal is to address the intersecting interests of our dynamic audience of architects, owners and design/construction professionals with a heightened level of excellence and innovation. Your thoughts are always welcome. Thank you for the opportunity to be of service. *Elaine Shusterman*

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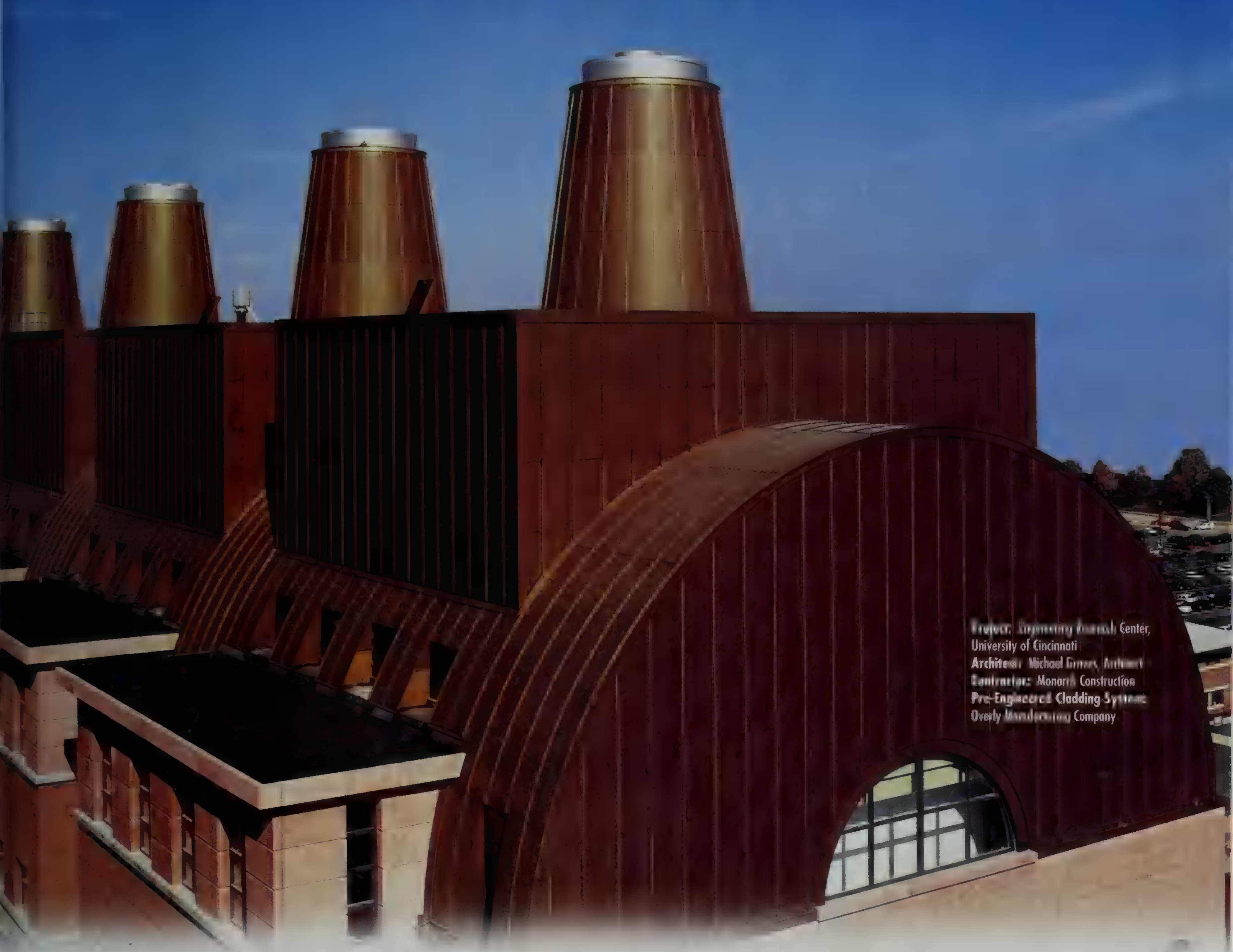

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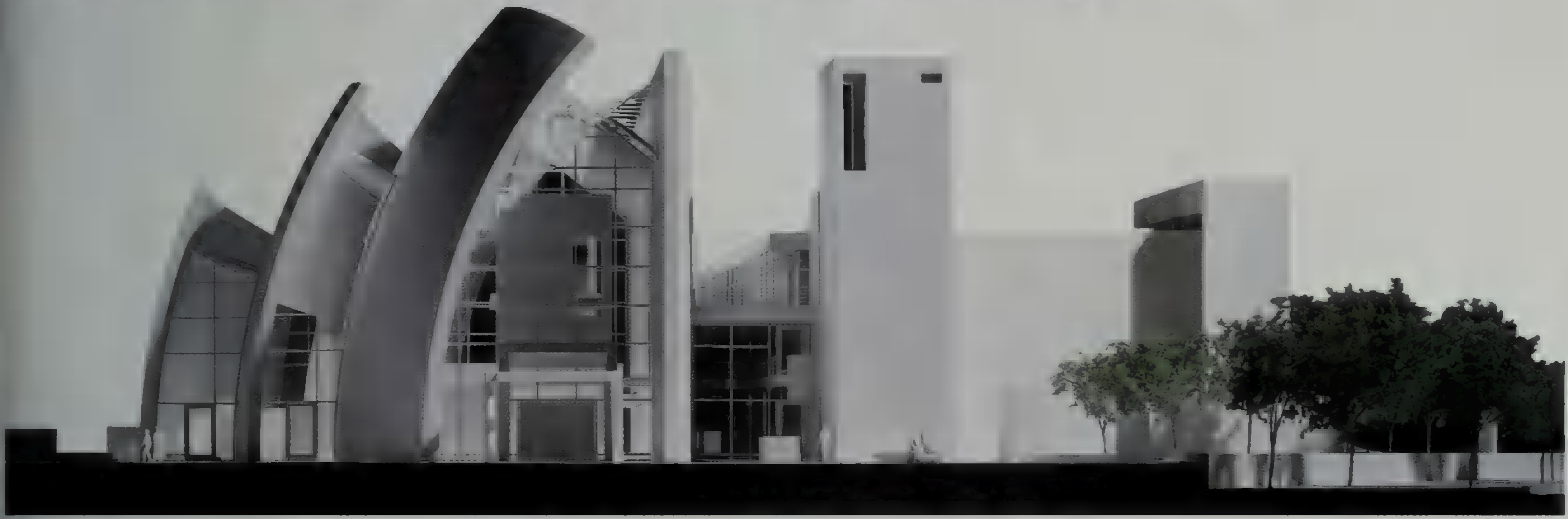
Rome

Meier & Partners Wins Vatican Church Competition



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The Vatican plans to build 50 new churches in Rome by the year 2000 and one of them will be designed by Richard Meier & Partners of New York City, the only non-Italian firm to be awarded one of the church commissions so far. Also vying for the project were Tadao Ando, Günter Behnisch, Frank Gehry, Santiago Calatrava, and Peter Eisenman, a group which was invited to compete following an unsuccessful local competition. Meier's design for the new parish church and community center will serve the 8,000 residents of a lower-middle-income housing complex in the Tor Tre Teste district of Rome. The $5-million, 22,000-sq-ft project is characterized by four shell walls of reinforced concrete that will cup the church like "the palms of three hands." *Abby Bussel*

California

Fairy Tale Campus in Glendale to House DreamWorks Animators

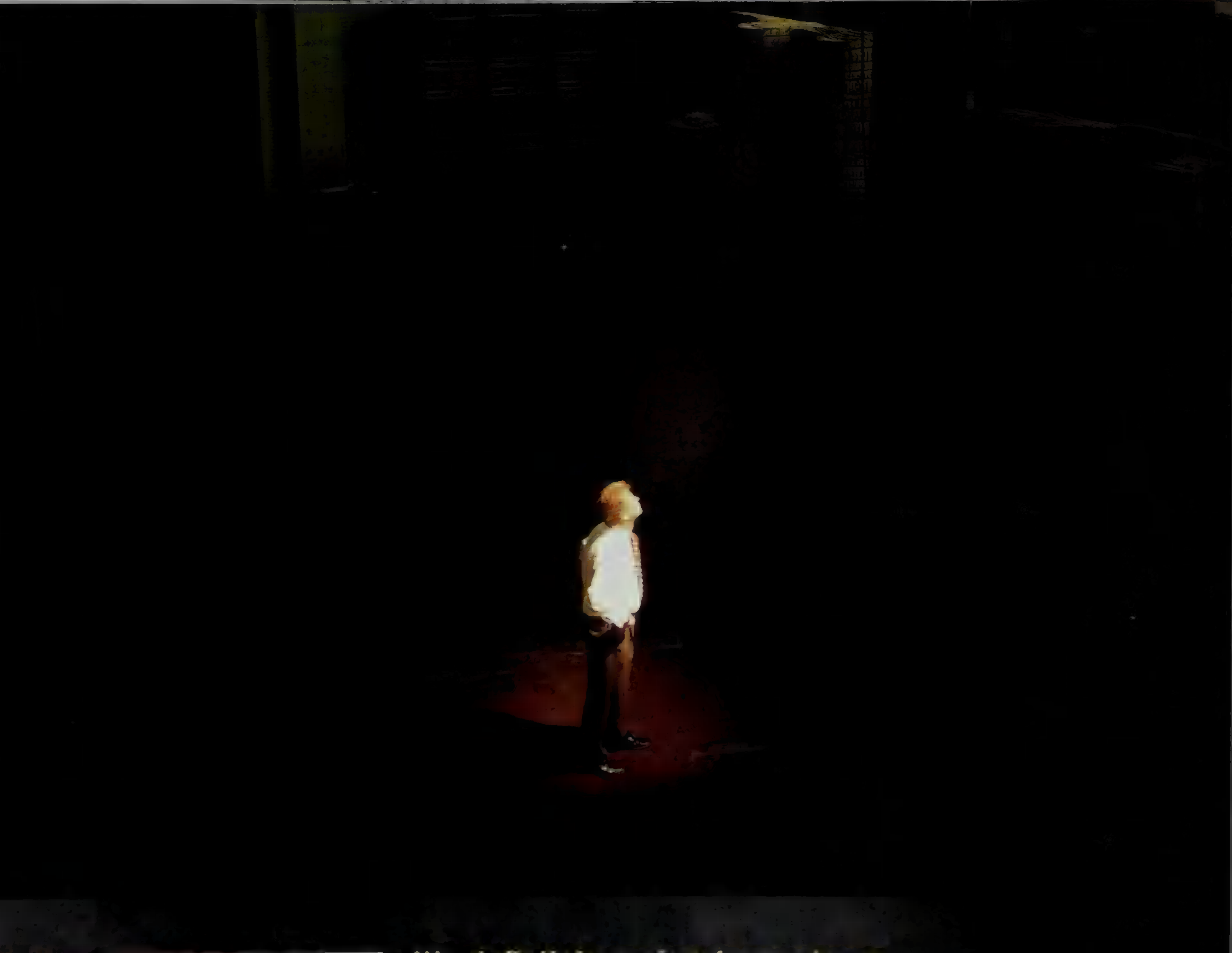
DreamWorks SKG, the brainchild of filmmakers Steven Spielberg, Jeffrey Katzenberg, and David Geffen, broke ground this June on its 300,000-sq-ft animation campus in Glendale, Calif. The Mediterranean-style design by Steven Erhlich Architects of Santa Monica includes five buildings organized around a central "piazza," which is anchored by a 105-ft-tall "campanile." Each structure, finished in plaster and roofed with Cor-Ten steel, will have courtyards, patios, and terraces to take advantage of the Southern California climate. A man-made river and a newly planted orchard will further animate the 13-acre site, which is adjacent to the Los Angeles River. Erhlich's design, the result of an invited competition, is to be completed late next year. Gensler Associates is the executive architect for the project. ■

Washington, D.C.

Indian Museum Design Unveiled

The Smithsonian Institution has unveiled the concept design for the $110-million National Museum of the American Indian—the first dedicated to Native Peoples of the Western Hemisphere and Hawaii—by GBQC Architects, Philadelphia, with Douglas Cardinal Architects, Ottawa, Ontario, Canada. Scheduled to open on the Mall in Washington, D.C., in 2002, the 250,000-sq-ft museum will house galleries, a theater, resource and conference centers, a restaurant, and a four- story multi-purpose room. ■

(News continues)



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A New Age of City Building Is Forecast At U.N.'s Habitat II Conference

Architect Robert Geddes was a participant-observer at Habitat II, the United Nations conference on human settlements, held recently in Istanbul. A former dean of the Princeton University School of Architecture and Urban Planning, he is now in private practice. RECORD spoke with Geddes about the conference, attended by more than 10,000 people.

Oratoköy Mosque and the Bosphorus Bridge in Instanbul, site of the U.N. Conference.

© *Robert Geddes photo*

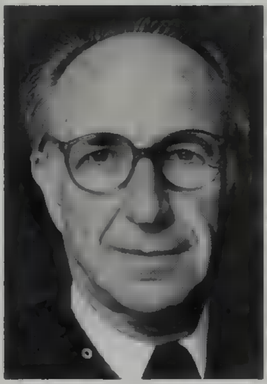
Record : What was the main agenda of the conference?

Geddes: The U.N. had a series of conferences starting with the Rio de Janeiro conference on the natural environment in 1992 and ending with the built environment in Istanbul. Between 1992 and 1996 there were conferences on women's rights in Beijing, population in Cairo, and social development in Copenhagen. These were all important milestones and the issues discussed at these conferences interact in cities. Every day the population of the world is increasing by one-quarter of a million people and most of that growth will be in cities.

The United Nations wanted to address two issues at Habitat II. The first was how to provide adequate housing for all, and the second was sustainable development in an urbanizing world. Conference organizers also wanted to create a global policy on shelter and sustainable design, which was related to individual statements submitted by the 185 U.N. member governments. The Istanbul Declaration and the Habitat Agenda set standards and criteria against which future actions will be measured and judged.

Record: What, in your view, was most significant about the conference?

Geddes: What was unusual about Habitat II was its effort to involve organizations other than governments in urban policy and development. For the first time, non-government agencies had a voice at a U.N. conference. This means growth in the importance of civil society and that's good for architecture. One aspect of the future of architecture is that we will not see our clients as simply as "public sector" or "private sector." We will see the growth of the *civic sector*. Community development organizations, cooperatives, and design coalitions will be the wonderful clients of the future.



"I would argue that cities of the future will be based on the neighborhood as building block.... For me, the solution lies in understanding what the street is and how to design it.—Robert Geddes, (photo left)

There was also an emphasis on incorporating the landscape into the development of cities. In the conference's Best Practices exhibition, the Chinese, for example, showed an initiative for garden streets, and one for starter housing. The Germans presented plans for the renewal and rebuilding of existing fabric—industrial sites and cities.

Record: You spoke on a panel called "What cities will look like in the 21st century." What do you believe will be the shape of our cities in the next millennium?

Geddes: I would argue that the cities of the future will be based on the neighborhood as the building block. The issue for architects will be how they create centers and neighborhoods. For me, the solution lies in understanding what the street is and how to design it.

We must also begin to develop ways of bounding cities and probably that will result in the development of new cities. The Middle Ages were a time of city building. People were striving towards the modern world and I think we are in a similar period. The architects' responsibility is in learning how best to build centers and edges. And, the practice implications are quite exciting. It will result in the expansion of architecture, which I think will include landscaping and civil engineering, infrastructure design and planning, and development planning.

Record: Based on your experience at Habitat II, what role can architects play in the shaping of the 21st century city?

Geddes: I put a real emphasis on the form of cities. The role of architects is concerned with spatial growth and form. Urban growth and form affects the natural environment; it affects women's living environments, particularly as they pertain to child rearing; it affects where people can [afford to] live and where they can [find] work.

I believe that in the future there will be five recognizable architectural products: building systems that are appropriate; the renewal of the existing building stock (looking at existing stock as landscape); looking at the neighborhood as a building block; ways of achieving sustainable communities; and the development of new cities.

Interview conducted by Abby Bussel.

News

Briefs

Commissions on the coast
Recent commissions on the West Coast include the renovation and expansion of a 1905 substation for the Jewish Museum San Francisco by Eisenman Architects, New York City, with Architectural Resources Group; the East Asian Studies Building for the University of California at Berkeley by Tod Williams Billie Tsien & Associates, New York City; a $100-million campus for Soka University in Orange County, Calif., by Hardy Holzman Pfeiffer Associates, Los Angeles with Summit Architects; and the Experience Music Project in Seattle by Frank O. Gehry & Associates, Santa Monica.

Praemium Imperiale Prize for Ando
Japanese architect Tadao Ando is one of five winners of this year's Praemium Imperiale Prize, which honors excellence in the arts. The international award is bestowed by the Japan Art Association.

P/A: The Next Generation
Six months after *Progressive Architecture (P/A)* was acquired and closed down by the publisher of *Architecture*, a group of former *P/A* staffers has announced the creation of a new on-line magazine and information service. Developed with Princeton Architectural Press and Reach Networks, the subscription-based magazine is to be launched this fall.

Cranbrook lawsuit settled
A lawsuit brought by Susana Torre against Cranbrook Academy for breach of contract —filed after her dismissal as director of the school's academy of art late last year—has been settled out of court; details have not been made public. Lillian Bauder, Cranbrook's president, announced her resignation shortly after the lawsuit was settled.

HUD to honor housing innovations
The new Building Innovation in Home Ownership Program, sponsored by HUD, recognizes projects that demonstrate developmental and technical innovations. Submissions are due September 15. Contact HUD User, P.O. Box 6091, Rockville, MD 20849. Attn: Rebecca Hollands. Tel. 800/245-2691. E-mail: huduser@aspensys.com.

National waterfront competition
A competition for a $2-million waterfront park in Greenport, N. Y., includes a $20,000 first prize. For more information, call 516/477-3000 or fax (516) 477-2488. ■

New York City

Community Design Centers Offer Alternative Model for Architects

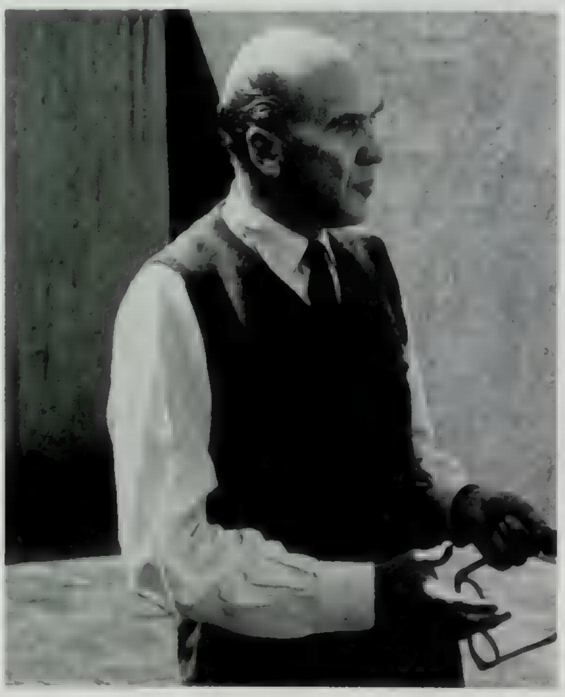
As some architects search for renewed professional relevance, community design centers (CDCs) stand as ready models, according to delegates at the 17th annual conference of the Association for Community Design. The association is a national organization of architectures and planners "dedicated to serving the economically distressed community."

Several examples of CDC initiatives were presented at the June conference, co-hosted by City College in Manhattan and Pratt Institute in Brooklyn. CDC members from Pittsburgh described their recently established Renovation Information Network, which is a consultation program to help homeowners. Delegates from San Francisco, where the CDC is called Asian Neighborhood Design, told how they design housing and furniture and encourage contractors to train youth from low-income neighborhoods.

CDCs in many communities are joining with local governments and allied professionals to serve distressed populations. *Abby Bussel*

Germany

Vitra Acquires Barragan Archives

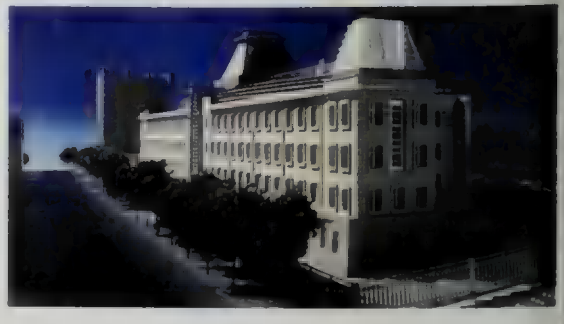

© *Vitra Design Museum*

The Vitra Design Museum in Weil am Rhein, Germany, has acquired the archives of Mexican architect Luis Barragan (1902-1988—shown above) from the architect's office and private collection. Included in the purchase are 13,500 drawings, 7,500 photos, seven models, a range of Barragan's furniture and objects, and related documentation, such as publications, correspondence, and other original material. The proceedings from an international symposium will be published in conjunction with an exhibition on the archives at the museum next year. ■

Canada

SOM Designs U.S. Embassy in Ottawa

Skidmore, Owings & Merrill of Washington, D.C., has designed the new United States Embassy building in Ottawa, Ontario, Canada. Located on a sloped, triangular island site along the Confederation Boulevard Ceremonial Parade Route, the 139,000-sq-ft building will act as a link between the city's Federal District and commercial center. It will also centralize U.S. government offices currently housed in several buildings throughout Ottawa. Responding to the diverse nature of the site's surroundings, which include the Cass Gilbert-designed Parliament and Moshe Safdie's National Gallery as well as an urban park, the architects have designed a building with four different facades, each meeting the U. S. State Department's strict security requirements. A rusticated, rock-faced stone plinth base wrapped around the poured-in-place concrete structure is designed to act as a unifying element. Construction is expected to be completed by fall 1997. The budget has not been made public. ■



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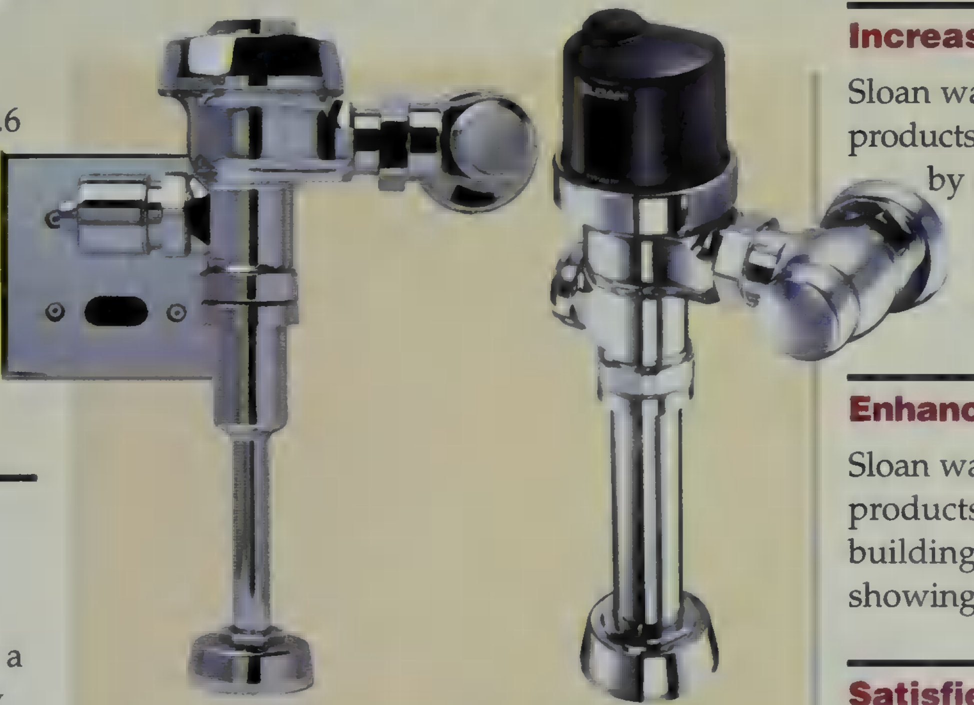

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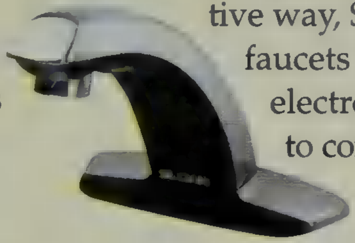

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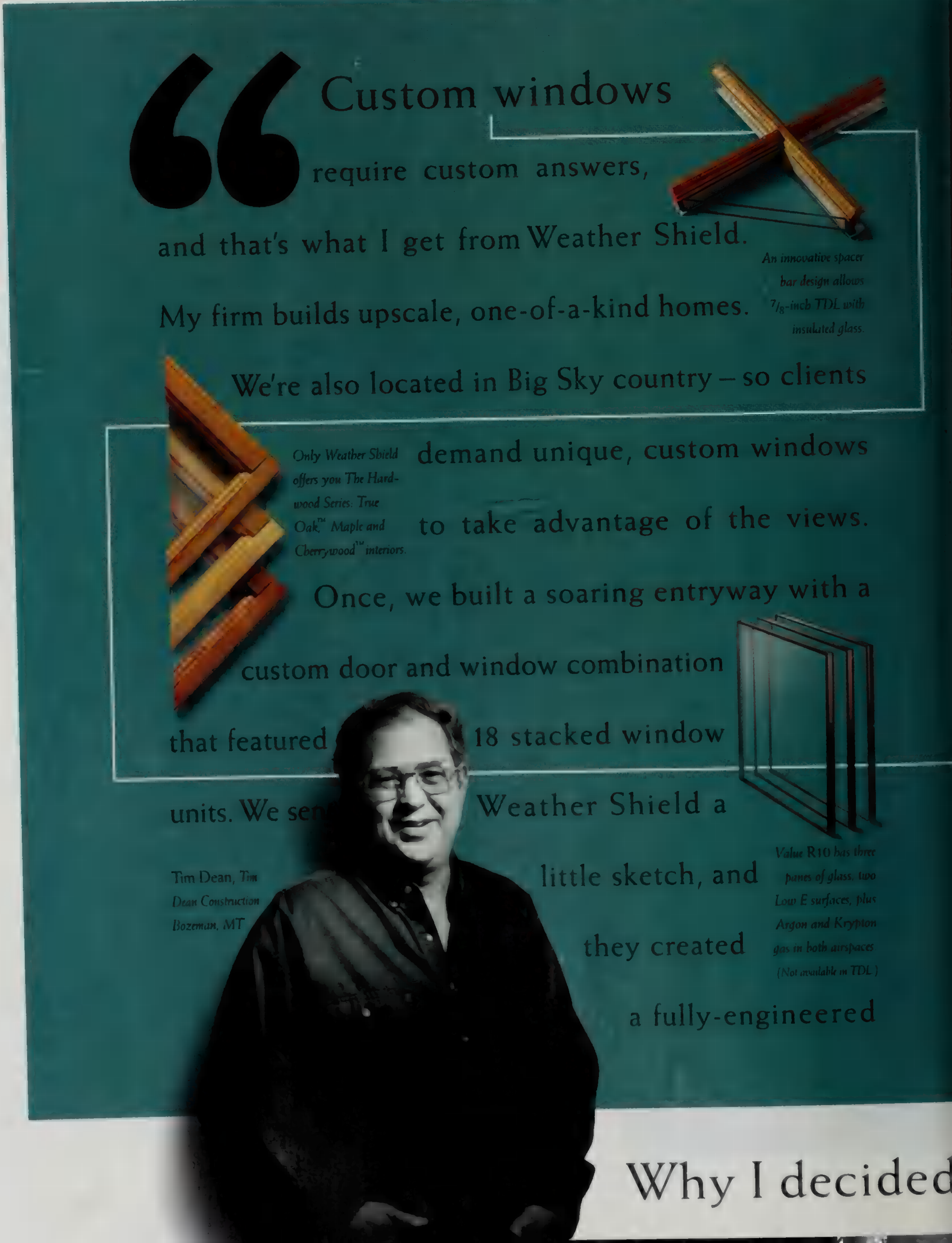

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oftening Brutalism: s Anything Lost?

The renovation of Walter Netsch's hard-to-love University of Illinois at Chicago campus raises some difficult issues.

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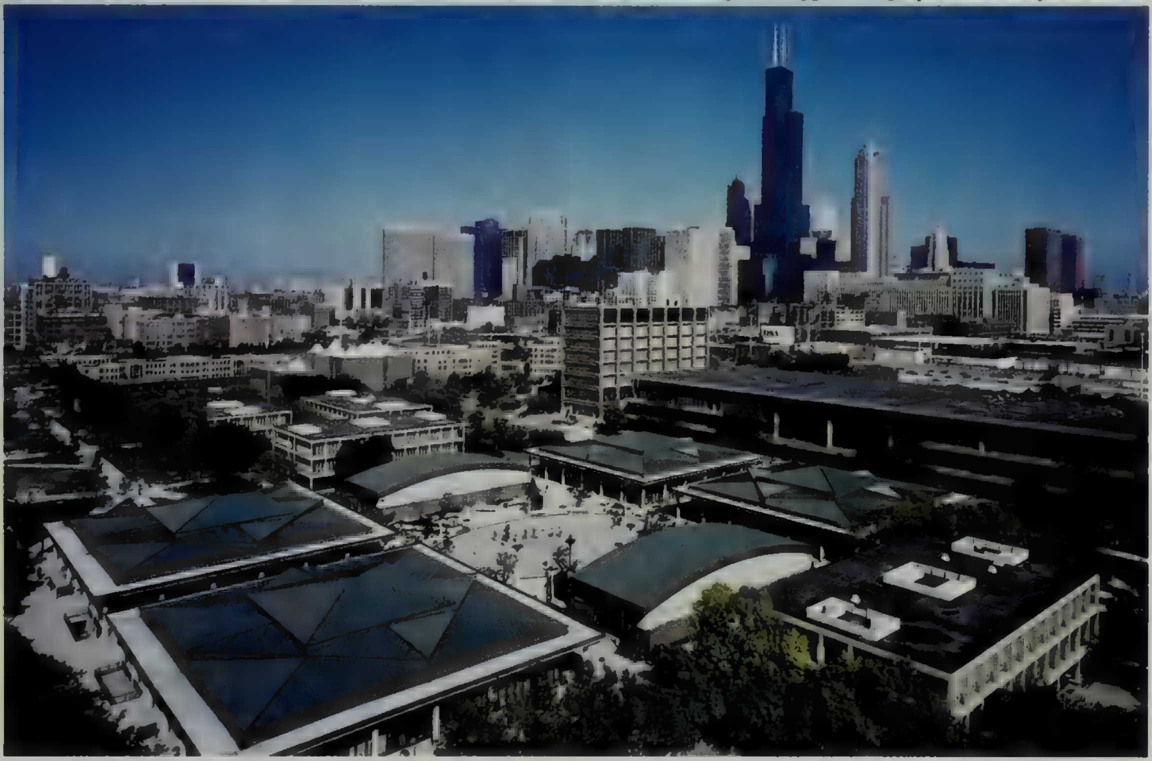

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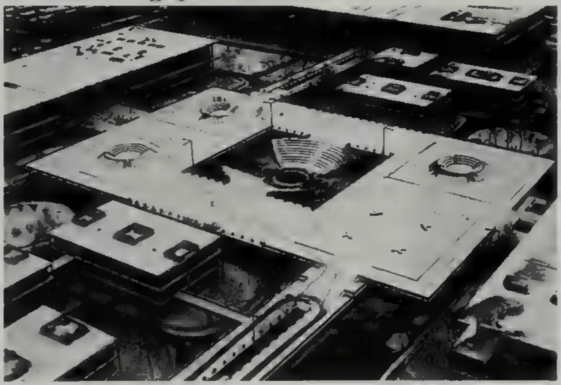


The UIC campus after renovation by Daniel Coffey (top), and as it was originally (above).

y Cheryl Kent

t the very moment interest in Modernism is eviving, one of its most complete essays has een modified, some might say, disfigured. he renovation of the 1965 Brutalist-style niversity of Illinois at Chicago (UIC) ampus could be cast as a classic fight of rchitectural integrity versus accommodaon of present-day tastes and uses. That is, if here had been a fight, but there wasn't.

iven that the campus is challenging, not asily loved, and has few public champions ther than the architect, Walter Netsch, who esigned it, the question of renovation was omfortably resolved, perhaps too comfortbly. The decision was to "humanize" it. Hey, ho could argue with that?

ithout question, the UIC campus was a ard-edged, tough place not easily accessible, ntellectually nor esthetically. It was difficult o maintain and had long fallen into disrepair. ost of the buildings are made of cast conrete, blasted to reveal the rough aggregate; thers are brick. Windows are often screened y ornate precast concrete that creates an nteresting textural effect from the outside ut blocks light inside. Netsch, 76, a former artner of Skidmore, Owings & Merrill who etired in 1979, says he used concrete expresively, always minimizing reinforcing bars in avor of bulking up the concrete. In this way, e says, the concrete would accurately reflect s load and function.

he campus, as it was designed and built, as surely an expression of the heady post-World War II techno-optimism that elebrated science and new materials, and magined a future of unlimited possibilities. ndeed, it was Netsch who gave that age an con when he designed the Air Force Chapel ear Colorado Springs, Colo., which was warded the AIA's 25-year award in 1995.

o many contemporary eyes, however, the IC campus was an inhuman place, unweloming in every detail, unsafe, reflecting the orst planning excesses of its day, and nonunctional in the bargain. Its system of levated granite walkways was a prominent target for criticism. The second-story walkways were to cross perimeter streets, where parking garages were to be located, and then move on to connect university buildings. When the garages were not built, the internal campus walkways, which were built, lost much of their reason for being. Yet, with their many concrete columns, they created a condition at grade level that felt dark and unsafe.

UIC was built on programmatic assumptions which were new and which, sadly, never fully materialized. Imagined as a campus that would compete with the University of Illinois at Champaign-Urbana, the Chicago campus was projected to accommodate 20,000 students by 1969, and more than 30,000 by now. At present, enrollment stands at 19,000. It was to be a commuter school, no dormitories, with students of all ages coming and going 24 hours of the day, 365 days of the year. Most important, it was designed for inner-city students who would not have been able to attend university otherwise. Because many of them were expected to come from poor households, the assumption was all students would work. Thus, the campus was positioned at a hub with access to highways and public transportation. The underlying concept was to invent a place for academic and social interchange and the plan reflected those ideals.

Circumstances changed in the 1970s. Money was diverted from state universities to technical and community colleges, making plans for completing the UIC campus impossible and simple maintenance problematic.

University officials began rethinking the campus design in the late 1980s. "I regard this as a hostile architectural environment," says Dr. James J. Stukel, president of the three-campus University of Illinois. He does not minimize the importance of the architectural changes he has made at UIC. "It's an historical landmark. People come from around the world to look at the campus. I personally wrestled over it. But I put people

Continues

heryl Kent is a former correspondent for /A and writes about design from Chicago.

over architectural design. We're trying to make an environment that's comfortable for students." Indeed, the campus was seen as so alienating as to repel potential students and faculty. The redesign, Dr. Stukel says, is one element in an effort to attract new students.

Dismantling the elevated walkways

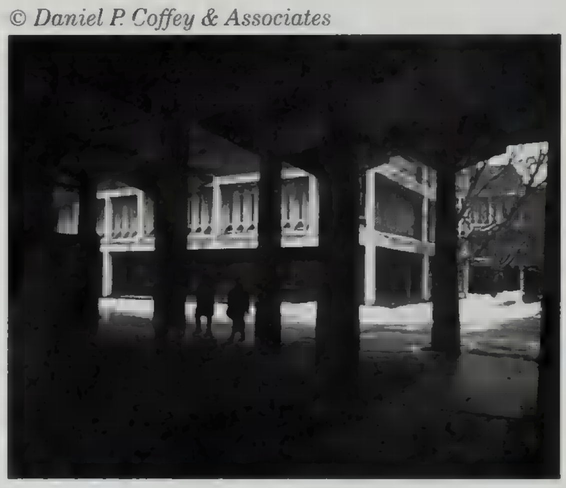
Under a prior university president, the firm of Johnson Johnson & Roy of Michigan was hired to develop a master plan, which was completed in 1990. It advocated building on the school's original Modernist scheme. The university ignored the plan, eventually commissioning architects Daniel P. Coffey & Associates of Chicago to renovate the campus (by that, the university meant "soften"). Coffey dismantled all the second-story walkways that together with the massive roof-top court formed the heart of Netsch's scheme. An amphitheater at the center of the court was done away with, as well as the exedrae at the four rooftop corners.

Six lecture-hall structures—functionally separate buildings—which were exposed when the roof-court was removed, were re-covered with standing-seam roofs. Four are now conventional hipped roofs that play on the rotated geometry of Netsch's original design; the other two roofs have become shallow vaults. The hip roofs would have been better left flat. As it is, they contrast weirdly with the strongly rectilinear buildings beyond. The vaulted lecture halls on the north and south sides of the quadrangle have an inexplicable air. Their entries don't face the square and their rooflines are incongruous.

Where the amphitheater had been, there is now an elliptical court at grade that is circulation space and, with its terraced seating, a place to hang out. Inexpensive concrete paving has been used, which contrasts poorly with the materials used before. In some areas the line of the elevated walkways has been followed with sidewalks. Elsewhere, simple intersections have become pedestrian nodes from which multiple paths take off in ways that aren't always geometrically rational.

The original craftsmanship and the level of detailing was extraordinarily high on the campus. Corner butt-glazing that has not been recaulked in 30 years remains intact.

© Daniel P. Coffey & Associates

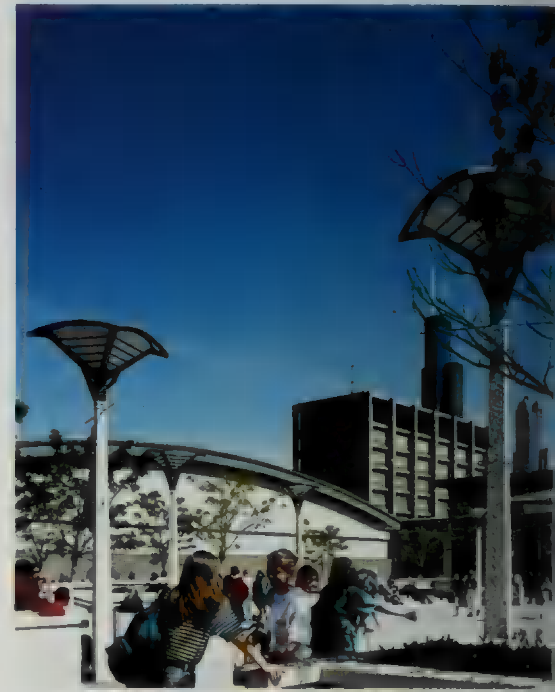


Brickwork is still tight as a drum. And there was an attention to detail that was far above the norm. "We used an old Renaissance trick; for big buildings, we used big brick; for small buildings, we used small bricks," says Netsch. Much, including the brick, was custom-designed—not an extravagance, as it would be today, but because the foundries, shops, and trades were still small enough to produce custom designs profitably.

Not everything held up well. Stukel says, "We had a choice, money could either go to people or to maintenance." In the late 1970s money was taken from maintenance. The annual requirement for the university's three campuses is $20 million, Stukel says. In good years, they get $8-10 million. By the late '70s, the campus had a worn quality despised by many students and faculty members.

Robert Bruegmann, professor of architectural history at UIC, says, "Right after it was completed, it looked pretty good. But within one generation, it began to crumble. Like any mega-structure, it was meant for long-term future growth. But the university lost faith in the main plan and the maintenance was disastrous." The steps leading up to the raised walkways had wires embedded in them to melt the snow. They were incompatible with the concrete. The transformers blew out and were never replaced. Snow was not removed. Second-story doors were locked so people couldn't use the walkways. Beneath the walkways where people were forced to walk, the cycle of thaw-freeze-thaw and plain leaking forced some to put their umbrellas up when the sun was out. In the end, Bruegmann says, "The university felt an overwhelming need to change this image of the 'concrete jungle.' "

The elevated walkways and massive roof-top court of the Netsch scheme (below left) have been removed to reveal six separate lecture halls and a new plaza (below).



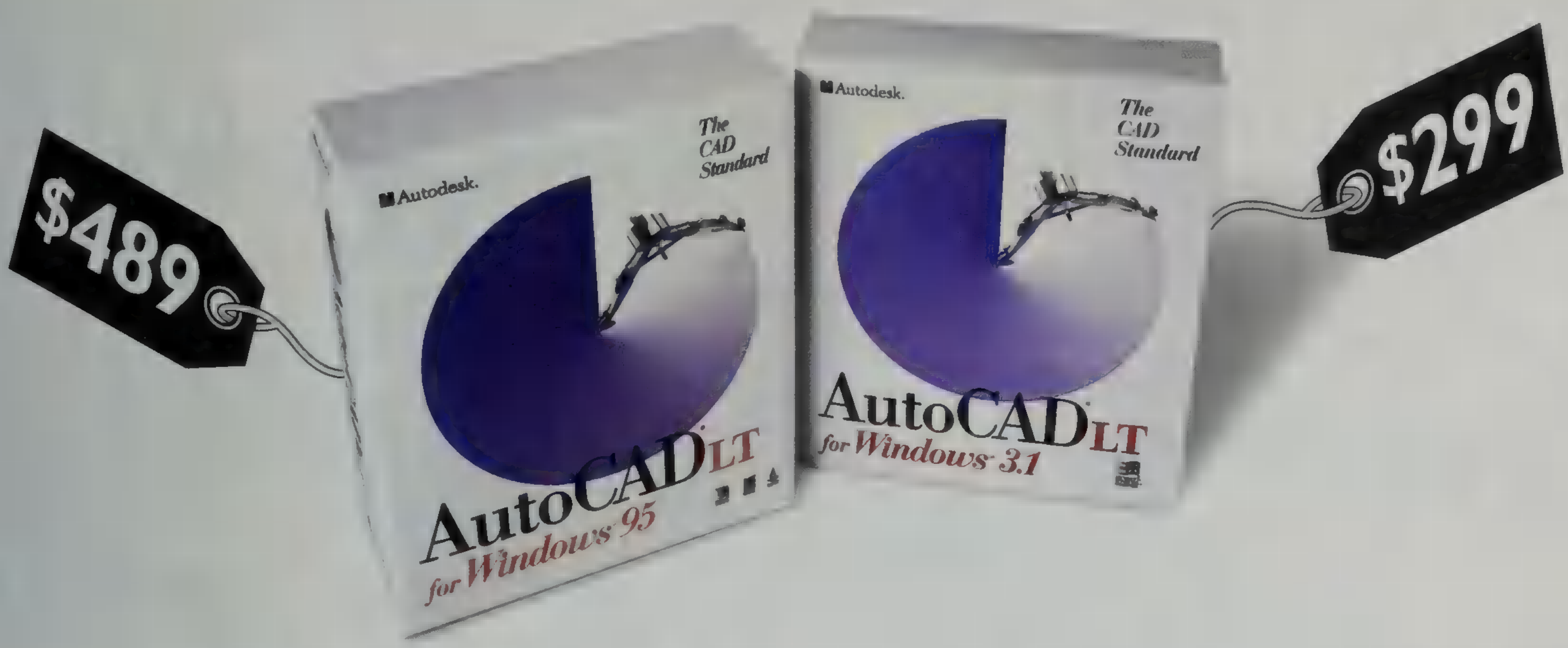
No more architectural militance

The pressures on the university are very rea
but this solution is very banal. This is not a
traditional campus and planting a quadrangl
in the middle of it won't make it one. If it onc
had the proud air of architectural militance, i
now seems reduced, shriveled, as though it
would like nothing better than for some vine
to grow over it.

Netsch didn't find allies in his efforts to save his design scheme, even when he offered to bring the walkways down to grade and make them conventional sidewalks. The public membership group, Landmarks Preservatio
Council of Illinois (LPCI), concluded the campus was not worth protecting.

And the city's Commission on Chicago Landmarks has never considered protecting the campus, partly because of the school's age; it is rare for buildings less than 50 years old to be landmarked.

Indeed, the chorus against the campus has been so loud and certain, even among architects, that the mere suggestion of protection could provoke laughter. The community may have been equally smug when building owners were ripping cornices off Louis Sullivan buildings in the 1960s and proposing Postmodern petticoats be tied around the waists of Modern monuments in the 1970s. I
20 years will we regret having allowed this?



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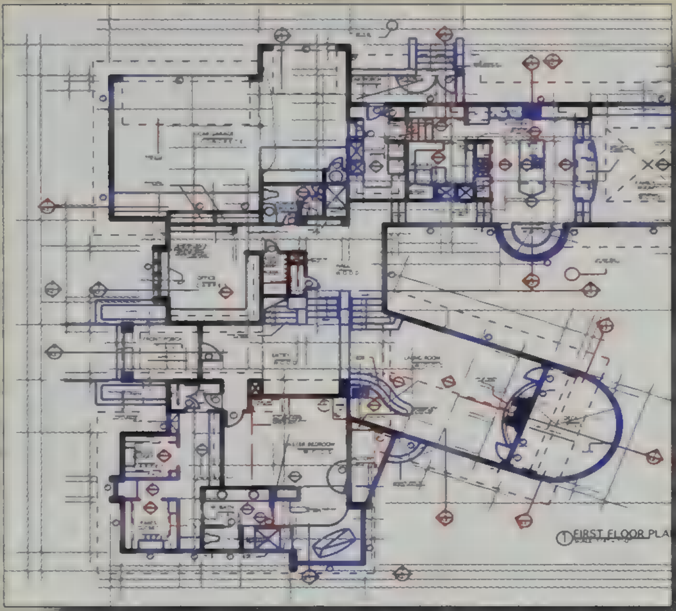

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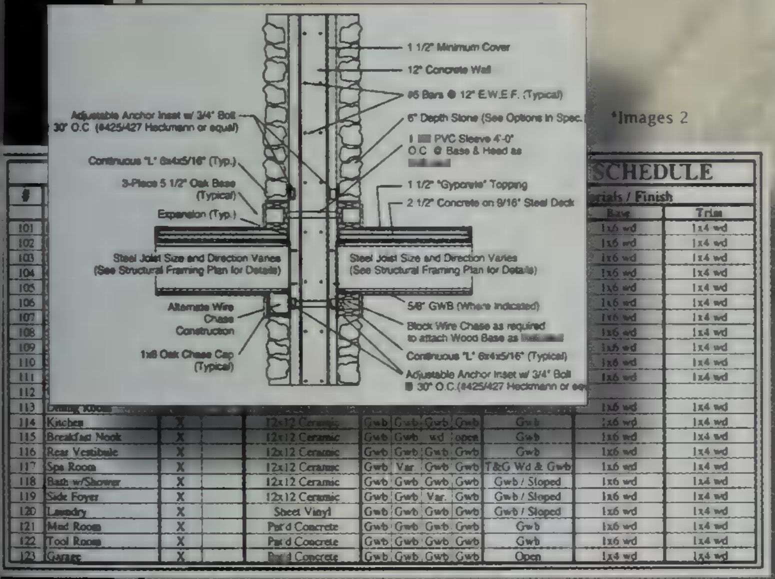
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Continuous "L" 6x4x5/16" (Typ.)
3-Piece 5 1/2" Oak Base (Typical)
1 1/2" "Gypcrete" Topping
Expansion (Typ.)
2 1/2" Concrete on 9/16" Steel Deck
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Alternate Wire Chase Construction
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Block Wire Chase as required to attach Wood Base as Indicated
1x8 Oak Chase Cap (Typical)
Continuous "L" 6x4x5/16" (Typical)
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SCHEDULE
Materials / Finish
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Trim
Kitchen
Breakfast Nook
Rear Vestibule
Spa Room
Bath w/Shower
Side Foyer
Laundry
Mud Room
Tool Room
Garage

*Images 2

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*Image 3 - Courtesy of David Brunke, Herring & Trowbridge Architects, Herndon, VA

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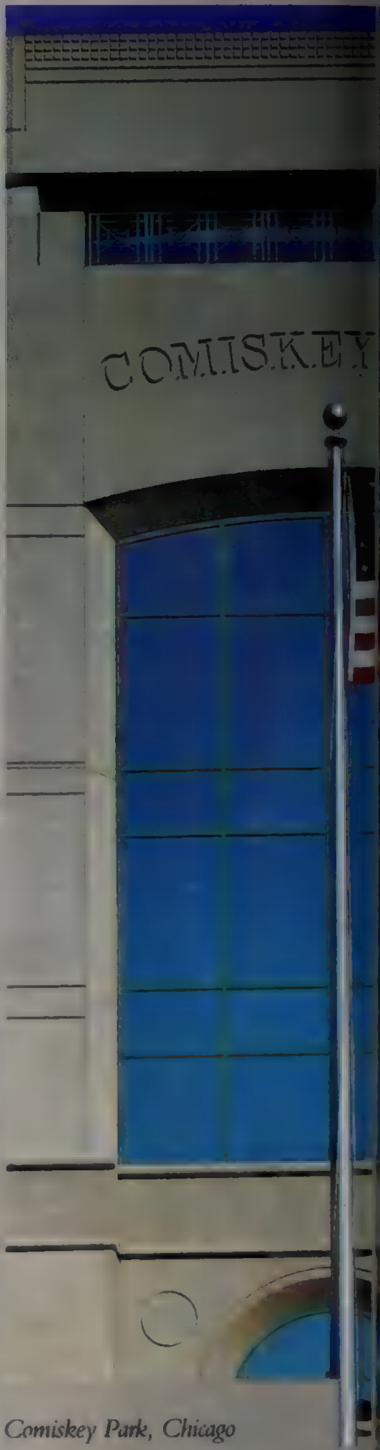
TIME AFTER TIM

The United Center, Chicago



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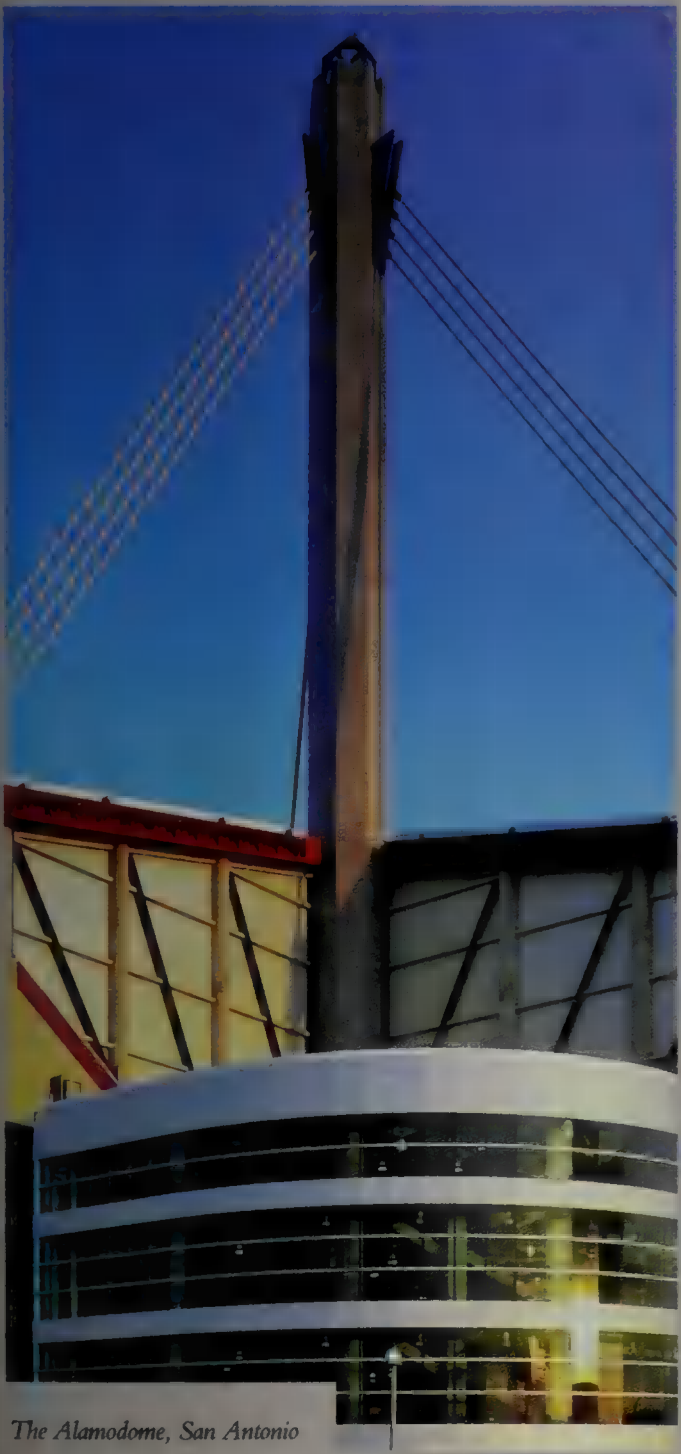
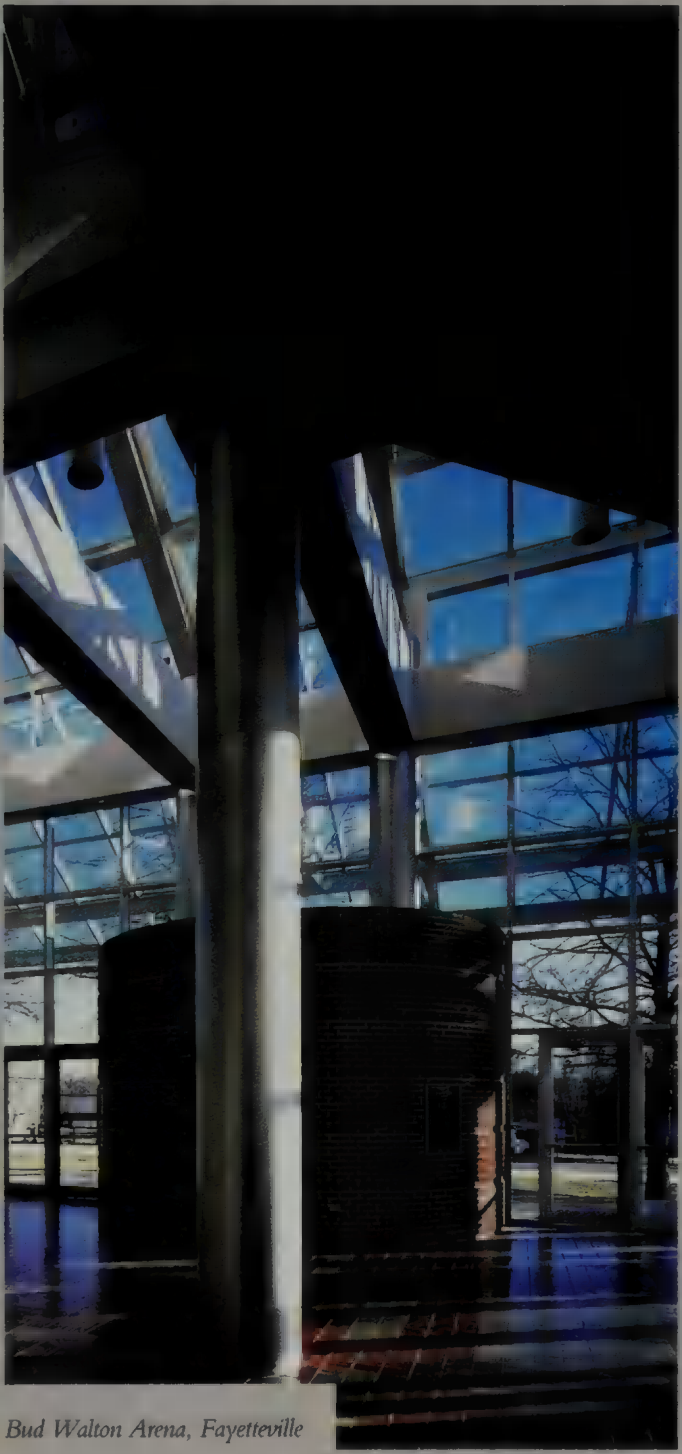

The Alamodome, San Antonio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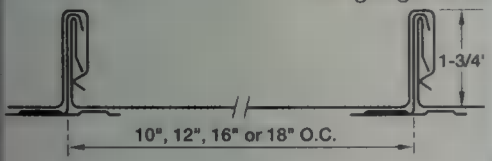

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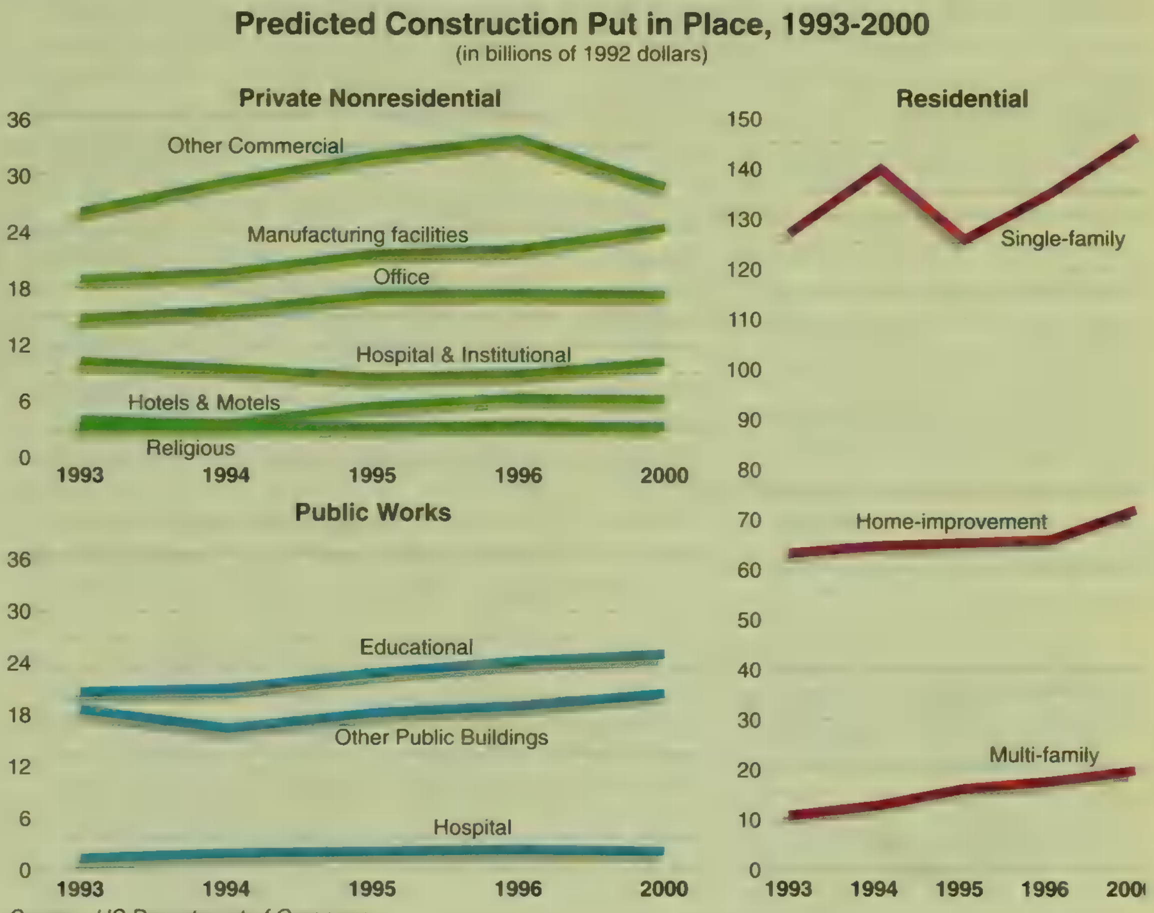
Indicators

Commerce predicts industrial strength

U.S. Department of Commerce's quarterly construction report predicts significant growth for industrial construction and schools in the next few years. Since construction at K-12 facilities is near record levels, that is good news. In spite of health-care cost cutting, Commerce expects hospital construction to strengthen too. It sees a "strong underlying demand" for industrial and utility construction because of the "need to modernize the capital stock of U.S. manufacturers." Other analysts [RECORD, June 1996, pages 36-39] see these sectors as restrained by import growth and a slower-growing economy.

Commercial types should rise modestly, following GDP, though Commerce sees the "big box" retail trend abating and office improvement restrained by new work patterns.

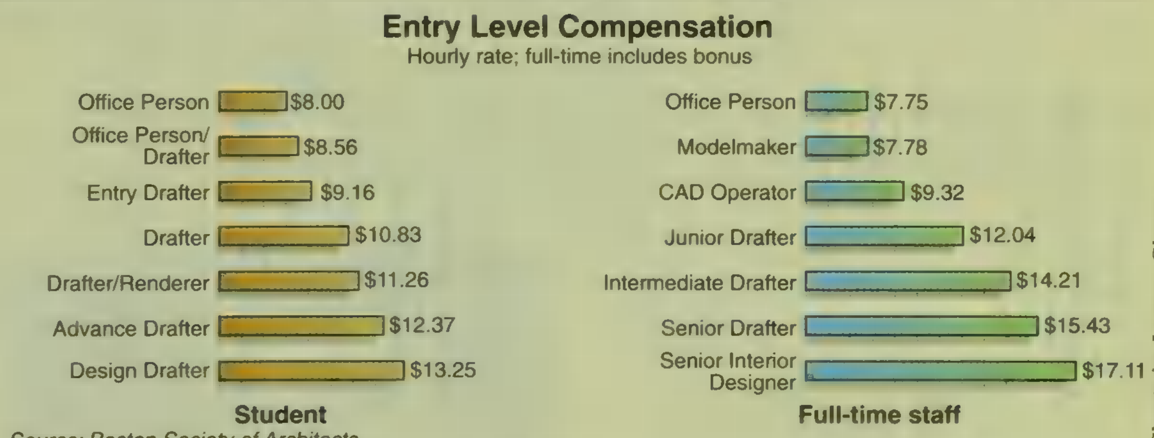
Housing's outlook is clouded by interest-rate concerns and demographic trends that favor multi-family over single family and move-up houses over starter units. (Note that the scale of the residential graph is different.) ■


Predicted Construction Put in Place, 1993-2000
(in billions of 1992 dollars)

Source: US Department of Commerce

Starting at the bottom

The "Massachusetts Architects' Compensation Survey Report" does what salary surveys rarely do: it looks not only at full-time staff, but at what students earn (in this case Boston Architectural Center students, who earn credit for working). While pay goes up rapidly with experience, the average on-staff senior drafter still earns only about $32,100 per year. The full survey ($65), covering all salary levels, can be obtained from the Boston Society of Architects by calling 617/951-1433. ■


Entry Level Compensation
Hourly rate; full-time includes bonus

Source: Boston Society of Architects

Charts by Leanor Glynn

The Profession This Month

Can Architects Help Cities Recover Civic Greatness 32
Evaluating Product Claims 50
A/E/C Computer Product Report 55
Mid-Year Product Roundup 66

Short Takes

◆ **Mixed construction volume in May:** Declines in housing weren't quite balanced out by improved volume in stores, offices, and schools, reports F.W. Dodge.

◆ **ISTEA's up for grabs:** November's elections notwithstanding, one of the top legislative issues facing the next Congress is reauthorization of the Intermodal Surface Transportation Efficiency Act. The act was a breakthrough for architects and planners because it allowed some highway funds to be used for transit and other transportation-enhancing or congestion-mitigating uses. The design professions will have to mobilize; highway builders will attempt to strip non-road provisions.

◆ **Engineers look ahead:** Since engineers and architects share many concerns, both may profit from the American Consulting Engineers' Council's *I Book* ($79.95), which discusses future-oriented ways engineers can maintain and enhance professional standards and stature. Fax ACEC Publications, 202/789-7220. ■

Can Architects Help Cities Recover Civic Greatness?

When cities with shuttered libraries and broken-down playgrounds feel compelled to build costly sports facilities that may be used only a few times a year, it's easy to conclude that the dynamic that created great architect-designed civic places is long gone. It's undeniable that sports facilities can boost a city's morale and its tax take (see Building Types Study, page 100). But who can see the likes of another Central Park or the "emerald necklace" park systems in Boston and Kansas City? Is there any equivalent to Daniel Burnham's visions for Chicago and San Francisco, or such City Beautiful set-pieces as Philadelphia's Benjamin Franklin Parkway crowned by its Beaux Arts museum? Where is tomorrow's Baltimore Inner Harbor?

Not everyone has traded Burnham's visionary dictum, "make no little plans," for the pragmatic "make only plans that don't involve raising taxes," but for architects concerned about urban redevelopment, involvement needs to go beyond doing a good job on individual projects. Architects' visioning skills can help draw together diverse urban constituencies, thereby building crucial support for the validity of bricks-and-mortar urban redevelopment—even helping projects pass muster with increasingly finicky voters. Also, a knowledge of the increasingly complex strategic and financial tools deployed today will help advocates shape feasible projects.

> *"Though the mayor was the impetus, the Phoenix Art Museum . . . was accepted by voters because it was such a small part of a billion-dollar bond issue."—Tod Williams*

Financing drives what's built

In a perfect world, a city would carefully plan what it needs, then seek project funding through appropriate mechanisms. The imperfect reality is the dynamic of political ego and local boosterism. "Trophy" urban projects like sports stadiums and convention centers have figured prominently on city agendas over the last few years, but analysts warn the bubble could burst. "Cities always perceive added sales-tax revenues or that a project will bring in tourists," says William Fulton, editor of the *California Planning and Development Report*. "I think a lot of the numbers are squishy and not always believable."

Convention centers are one of the few local projects that will often draw state aid, says Hal Hovey, editor, *State Budget & Tax News*, a twice monthly newsletter covering financial policies of state and local governments. But, adds Alan Ehrenhalt, editor of *Governing* magazine, Washington, D.C., "Lots of big-bucks convention centers haven't returned much in their early years. Denver started out in trouble." He notes that boosters then propose even larger centers, "because otherwise you'll be behind some other city."

Aquariums seemed to join every city's "must have" list in the wake of the phenomenal success of projects in Monterey, Calif., Baltimore and, most recently, Chattanooga. On the other hand, a recent aquarium in Camden, N.J., has performed well below expectations, and Ehrenhalt calls Tampa's "a flop" [RECORD, June 1995, pages 78-85]. In such facilities, unsuitable programming and design are usually part of what goes wrong.

Phoenix Art Museum, nearing completion, by Tod Williams and Billie Tsien.

There's also something of a backlash against extortion by sports-team owners, who threaten to move a team if a new or improved stadium is not built.

Not everyone is a naysayer. J. Thomas Black, urban-development economist at the Urban Land Institute (ULI), argues, "When you have a project of symbolic importance to a city or metro area, it's okay if it attracts business. If you are a major-league city without a major-league team, you may lose what the private-sector calls market power. It's a sort of presence or dominance akin to the role Wal-Mart plays in its market segment."

While the failure of Seattle's visionary park scheme, the Commons (opposite), would seem to bear out the consensus that large-scale traditional civic projects are dead ("Everyone likes them; no one wants to pay for them," says Fulton), an established city like Minneapolis has embarked on an ambitious library-building program, as has young, fast-growing Las Vegas.

The architect's role

The skills many architects have are critical to the qualities common to successful urban redevelopment: an ability to understand context, to look at the big picture, and to help link apparently disparate areas and functions. Inner Harbor brought Baltimore's downtown to its waterfront; architects and designers redefined the shopping mall as the festival marketplace. In the Gateway Center in Los Angeles, explains Stanton Eckstut, partner in New York City-based Ehrenkrantz and Eckstut, "we looked at how what is essentially an infrastructure project could be leveraged, like Grand Central Station." Federal transportation funds financed the intermodal rail and bus terminal, but the architects designed the project to create value for commercial developers (page 36).

"In urban Los Angeles, everything has been driven by entertainment-oriented retail," comments Fulton, citing Universal Citywalk, a movie-studio retail adjunct. He also cites Culver City, which hopes to build retail related to its resurrected Sony/Columbia Pictures studios. He might also have been speaking of New York City, where entertainment retail has bailed out the long-stalled redevelopment of Times Square (page 37).

One of the reasons the Seattle Commons went beyond the back-of-the-napkin-stage, says Tom Byers, the former chairman of the

Architects' skills—abetted by knowledge of complex strategic and financial tools—can help draw together diverse urban constituencies, to build crucial support for bricks-and-mortar urban redevelopment.

park planning committee, is that Douglas Kelbaugh, then chairman of the architecture department at the University of Washington, offered to run a charrette on the idea, uniting students with experts from around the country. The charrette "gave narrative shape to what had been just a green blot on a map," explained Byers.

Planners, landscape architects, and urban designers all served on Commons committees, and were relied on, according to key participant David Wright of the Bumgardner Partnership, "for their ability to interpret disparate thoughts into plans and renderings; the ability to imagine and depict ideas in three dimensions and in lay terms."

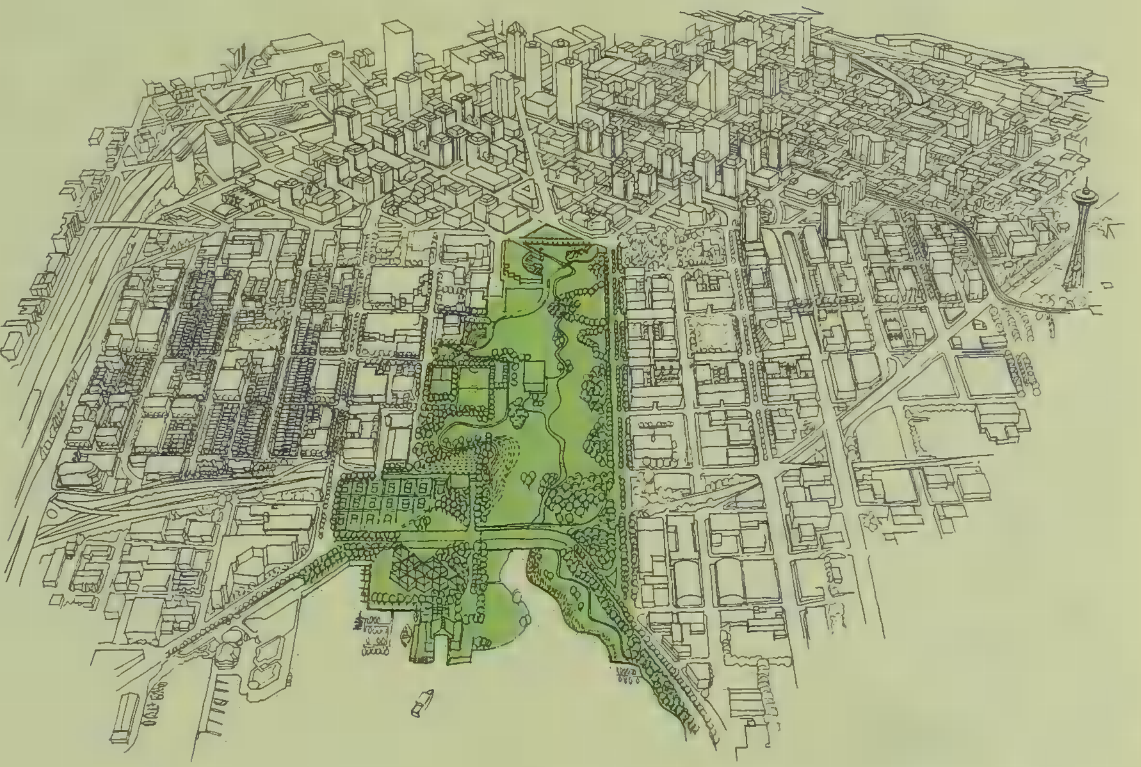
The altered redevelopment economy
The Commons foundered, say analysts, because it didn't appeal to voters who didn't live nearby, yet was too costly to be underwritten by any entity smaller than the entire city. To succeed, projects, however worthy, have to make sense in the redevelopment economy that's evolved today.

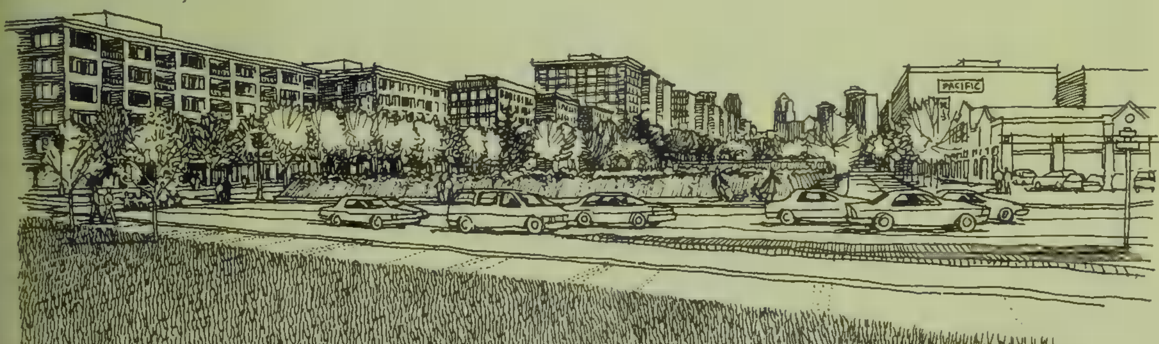
"Less federal money" is an important reason local governments have had to become more creative in securing funding for development priorities, says Hovey. And the consensus of economic-development experts is that states have not and will not pick up the slack.

When federal grants first began to dry up in the 1980's, local governments turned to public-private partnerships to generate cash for redevelopment. In Boston and San Francisco, developers were often forced to underwrite low-income housing through so-called "linkage" deals as a condition for permission to build. But the commercial real-estate market, to which such projects must be linked, hasn't for several years been able to generate the lush cash flow needed. Instead, new kinds of partnerships are being formed, says Vernon George, who is president of Hammer, Siler, George Associates, a financial and economic-development consultant to cities. Universities and research-oriented medical facilities are increasingly working with cities to help develop startup companies in downtown research parks. The benefit is that locally developed companies capture the economic spinoff of research for the community. The parks work best, says George, when university, government, and private sector "each play both a key financing role and a key part of the development process." His firm is developing such parks in Richmond, Va., Oklahoma City, and Winston-Salem, N.C. He says that technology-related economic development is so popular that it is easy to build support from state sources and even from suburban counties, because such development boosts the region's "high tech" profile.

Strategies and money
Localities still have numerous tools to develop and finance projects. Of the following, tax-avoidance or tax-lowering devices have recently tended to supplant bond-raised direct capital grants.

- *Bond issue:* The tried and true method. Yes, taxpayers are reluctant to tax them-





Big idea takes a big fall
Architects and other design professionals were key in giving form to and promoting Seattle's Commons, a 46-acre park that would have revitalized an underused neighborhood by linking downtown with Lake Union. Voters twice rejected bond funding for this ambitious scheme. Experts say it should have been packaged with projects from all over the city.

selves, but projects with broad appeal that fill a real need still garner approval. They are very hard to pass in localities that set a 60 percent or two-thirds approval threshold.

◆ *Revenue bonds:* These are currently popular because the bonds are sold to finance a project, then retired through project-generated revenues, not taxes. Only revenue-generating projects can be financed in this way. Such bonds support stadiums, airport expansions, hospitals, and some higher-education projects.

◆ *Tax-increment financing:* Avoids directly increasing taxes by applying the amount of additional taxes generated by redevelopment to pay off projects' costs. It's not allowed by many state constitutions.

◆ *Occupancy taxes:* These are additional taxes added to hotel rooms or restaurant bills aimed at non-voting out-of-towners who benefit from the use of facilities such as convention centers, stadiums, aquariums, and other attractions. The taxes can be used to pay off project debt or support operations.

◆ *Enterprise zones:* Areas targeted for redevelopment benefit from special tax breaks, job-training assistance, and other aid. (Tax abatements, often offered as part of enterprise-zone packages, may also be offered as a redevelopment inducement outside zones.) Numerous states have defined enterprise zones. Of the much-ballyhooed federal enterprise-zone initiative, only six communities have been named, although there are 65 second-tier "enterprise communities."

◆ *Commercial revitalization tax credit:* A federal program that might work in tandem or apart from enterprise zones and that is similar to the tax credit for restoring historic landmarks. The latter credit still exists, but lost considerable value through the repeal of "passive loss" provisions that made it attractive to investors. By lowering the cost to business, the proposed tax credit encourages redevelopment of distressed neighborhoods. It has yet to catch fire in Congress.

What techniques work?

Economic-development experts see advantages and pitfalls in all these methods. "You can get a bond issue passed," says *Governing* magazine's Alan Ehrenhalt, "but there's often no money in the operating budget. We are getting these problems with jails." Black echoes the sentiment, and adds, "If you're going to use local resources to operate a new facility, you are drawing down energy from existing operations that in some communities are marginal. You've got to make darn sure these things are going to perform positively financially and are going to be part of the solution, not part of the problem."

Experts see two essential elements that help bond issues pass: they must be for projects of region-wide popularity, or smaller projects must be packaged to appeal to a wide range of voters. Phoenix has been able to build a new central library, a history museum, and an art museum—indeed to establish an entire arts district it never had—funded largely by a bond issue (page 32). These projects, though highly visible, were only a small part of a nearly $1-billion region-wide bond issue.

"Some cities have used tax-increment-financing very effectively," says Ehrenhalt, naming Suisun City, Calif. [RECORD, June 1995, pages 106-111], which was able to accomplish an extraordinary turnaround financed by the tax increment of increased value generated by almost its entire land area. San Jose has also financed revitalization of its once-moribund downtown through tax-increment financed cultural facilities. Tax-increment financing has its risks, however. While it creates funds for redevelopment without short-term tax increases, the increased value of growth is used to pay off the redevelopment debt, not to build schools or other facilities that growth can create new demands for. Still, says Ehrenhalt, "It's one of the best tools there is."

Enterprise zones were first touted in the 1980's as an antidote to constant injections of urban federal aid. Yet it has been the federal government that has dragged its feet in creating an enterprise-zone program, enacting it only in 1993. Instead, states pioneered the zones, says Jim Breagy, of the National Council for Urban Economic Development. (The organization represents urban-development offices in city governments.) "About 38 states have some form of program," explains Breagy, but, in terms of success, "they are a mixed bag. Some say states alone can't offer enough tax breaks to work." Adds ULI's Black, "They're really most useful when they are part of a package that includes an overall

Leveraging ferry funding in San Francisco

A historic-preservation program and augmented facilities for passenger ferries (2) is being underwritten by state funds, grants from the Federal Emergency Management Agency (for earthquake-related repairs), and federal highway funds traded in when the city opted not to replace the earthquake-damaged Embarcadero Freeway (prior to demolition, 1). The design team includes Roma Design Group, Sasaki Associates, the city's port, and James Stewart Polshek & Partners. This work extends years-long waterfront redevelopment that includes housing, a new trolley line, and a promenade (designed by Stanley Saitowitz—3).

Rethinking Philadelphia's Independence Mall

Venturi Scott Brown & Associates compared four-block-long Independence Mall, criticized as uninviting and underused almost since its opening in the 1950s, to other famous urban places (4, 5) in studying it as a location for a "gateway" visitors center. Pursuant to its charge from the local Pew Charitable Trusts, which underwrote the study, VSBA designed the center to not only orient visitors to Independence Hall, the Liberty Bell, and other historical sites, but also to acquaint them with other regional attractions. The designers offered possible sites for a center on the Constitution, and suggested an alternative to Mitchell/Giurgola's 1976 Liberty Bell pavilion (6, 7), criticized by some as too modern.

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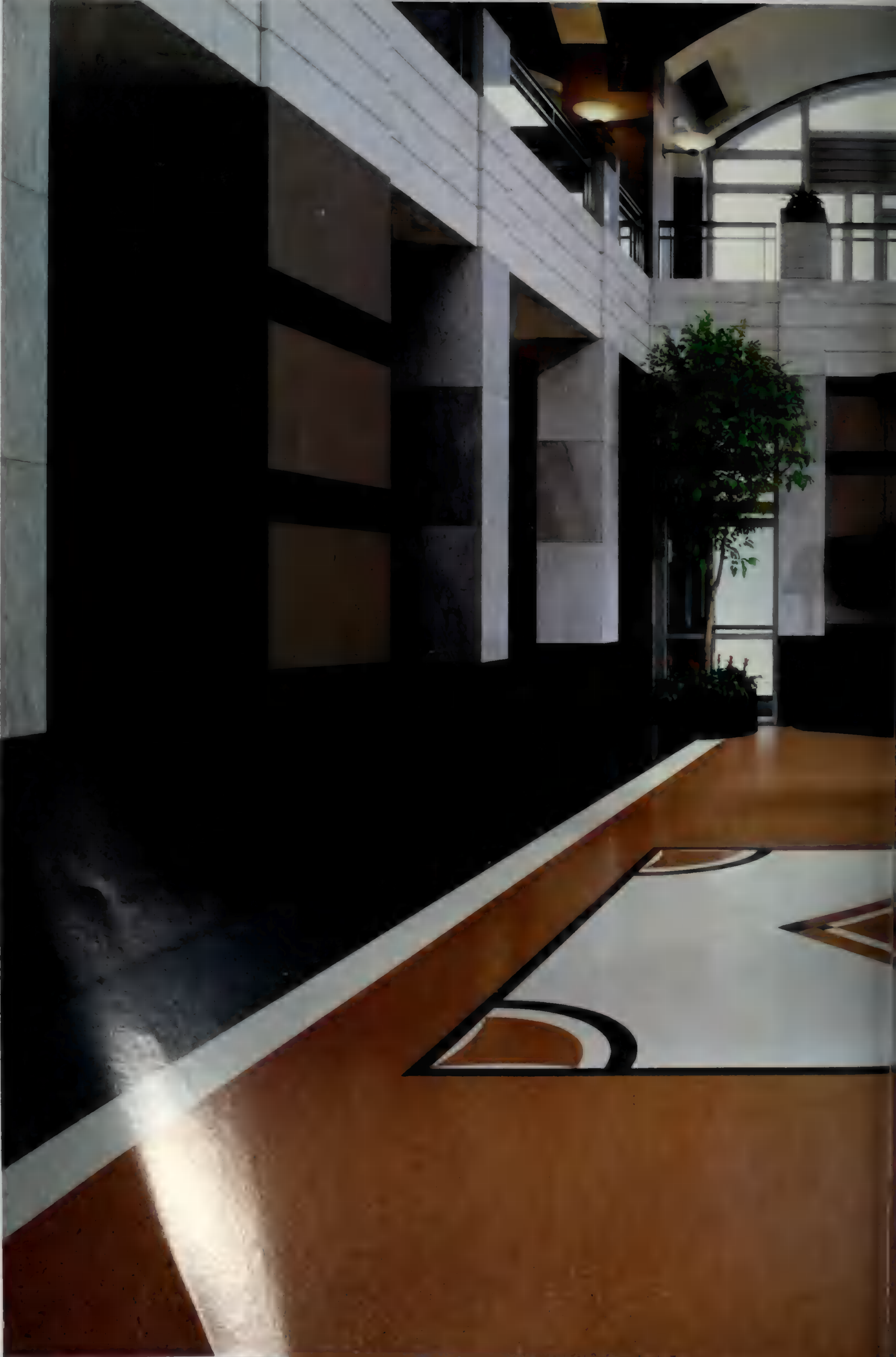

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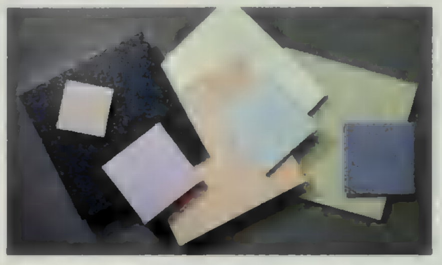

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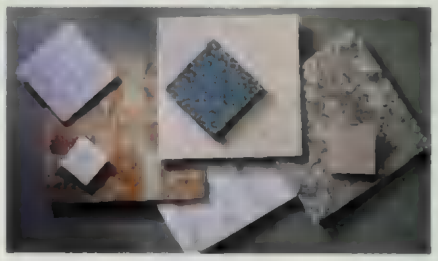

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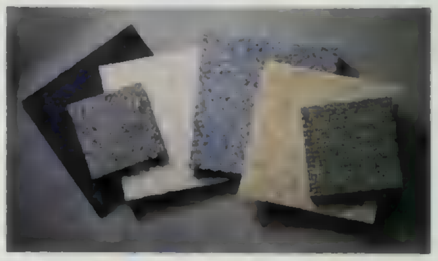

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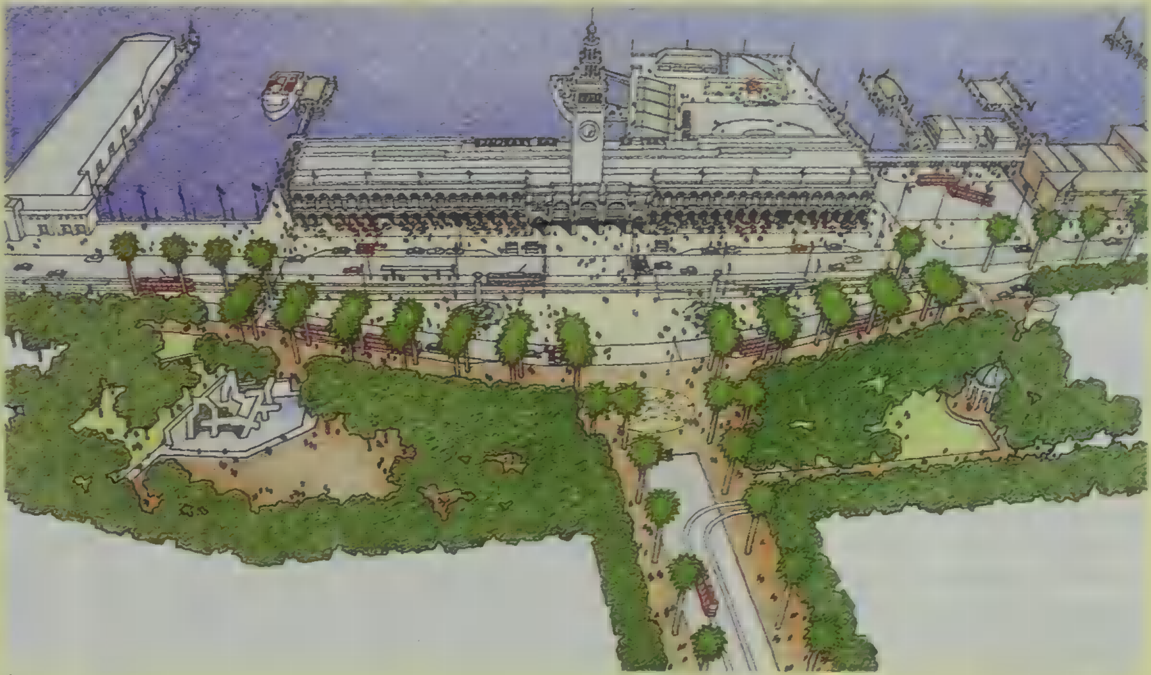

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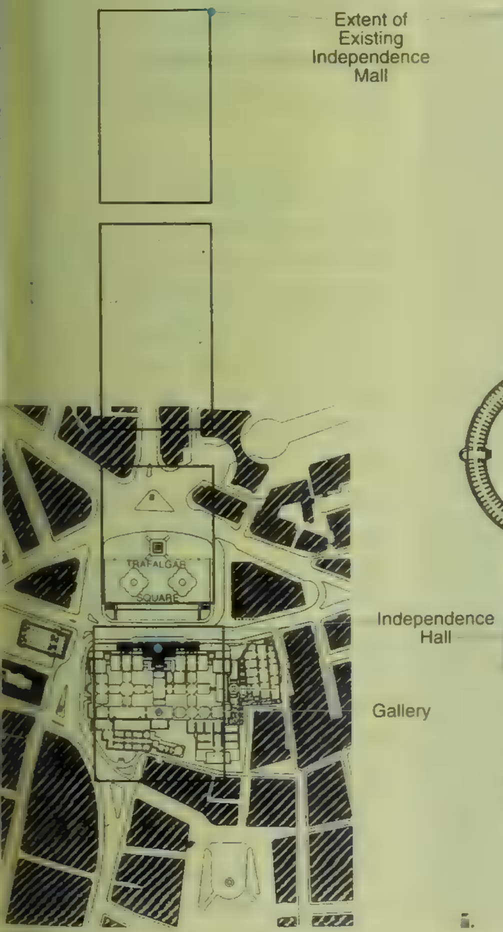
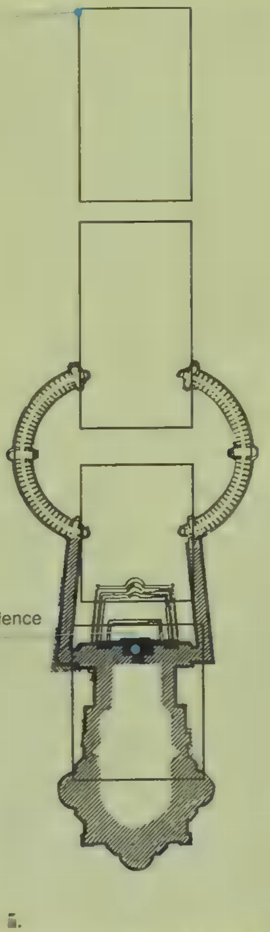


NATIONAL GALLERY, LONDON



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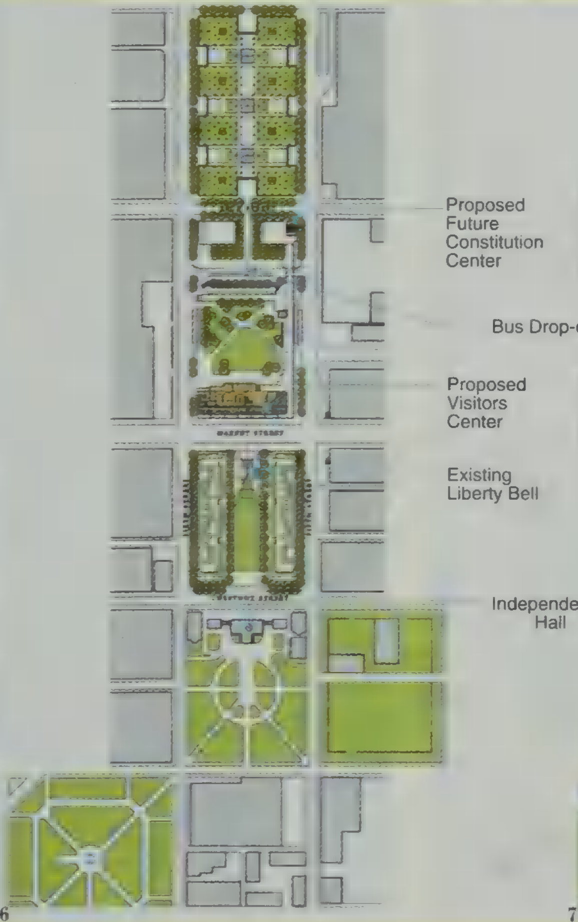

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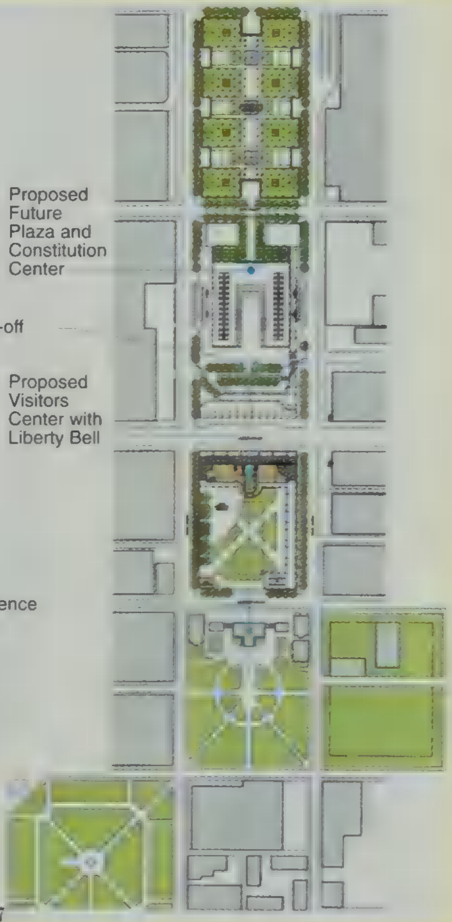
ALTERNATE A


Proposed Future Plaza and Constitution Center
Proposed Visitors Center with Liberty Bell

7

ALTERNATE B

plan, a public-infrastructure investment effort, a strategy to deal with [industrial] contamination problems, and so forth." President Bill Clinton would like to name more enterprise zones, but Breagy doubts Congress will act in an election year.

Among the most successful if complex techniques is to leverage funds from numerous sources, such as at San Francisco's Ferry Terminal (previous pages). Also in San Francisco, federal funds to repair buildings in the quake-damaged Civic Center were boosted by local bond issues and private donations for restoration of the Beaux Arts-style City Hall, War Memorial Opera house, and other landmarks. Funds for military-base closings and Superfund environmental cleanups can be combined with other funds for urban parks or industrial redevelopment on formerly contaminated "brownfield" sites, says Fulton.

Bigger bangs for the buck

Urban redevelopment is more successful, says ULI's Black, when cities don't look only "at this facility or that facility," but build with a strategy "to capture some segment of a market." Sports facilities or convention centers contribute more when they are connected to restaurants, bars, or entertainment-oriented retail. Credit the planners of Baltimore's Camden Yards for applying these synergies to baseball parks—it's now caught fire nationwide. But Seattle learned this lesson as long ago as the late 1960's when it located its Kingdome adjacent to revitalizing Pioneer Square. Philadelphia learned the lesson again just two years ago when its new downtown convention center opened, pumping life into adjacent Chinatown and the Reading Terminal Market (a combination of funky lunch places and farmers' market).

"The big new buzzwords," says Denise Scott Brown, "are cultural touristic planning." According to Scott Brown, a planner as well as architect, and partner in Venturi, Scott Brown and Associates, "Studies show concert halls bring in more money and have a higher multiplier effect than stadiums." This is the case because visitors persuaded to stay the night spend more money than day trippers. "I think city planning commissions have

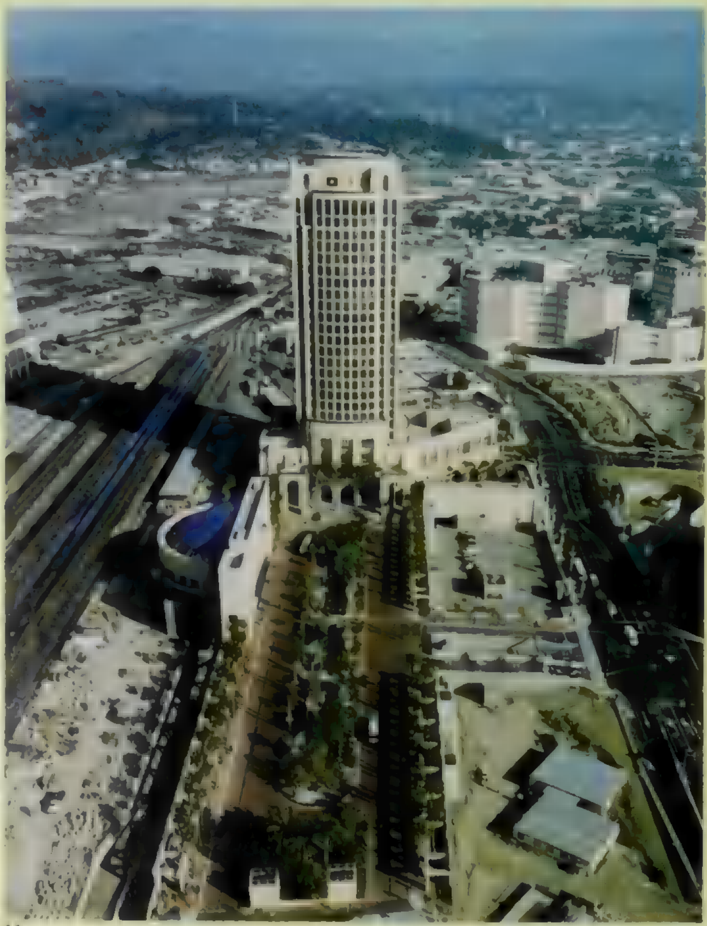
Continued on page 127

Tax abatements and exemptions help Manhattan's Battery Park City rise again

Battery Park City, in the 1980's, was in many ways the model for public-private redevelopment on a vast scale. It has proven, however, virtually a one-off. Its early success, says former president Stephen Petruzello, "was largely due to luck"—the project was ready to go just when developers needed new office space in lower Manhattan, and workers in fast-growing brokerage firms sought homes within walking distance of Wall Street. Development halted as the financial business shrank, and firms moved uptown or out of town.

Battery Park City has been cast in a new role: the place where financial firms seeking space for giant trading floors can find large enough sites, and as an extension of the Tribeca neighborhood, a former warehouse district now turned residential. Richard Cook & Associates draws imagery from the warehouse vernacular (9). Tax abatements and exemptions encouraged The New York Mercantile Exchange to build hard against Cesar Pelli's World Financial Center (10). It will have trading floors as large as 42,000 sq ft.

A new crop of housing (8) will set aside 20 percent of its units for those earning the area's median income or less (about $43,000 annually for a family of four), according to Jon McMillan, director of planning. In return, developers will receive real-estate tax abatements and tax-exempt financing—both of which are worth a great deal in high-tax New York City.



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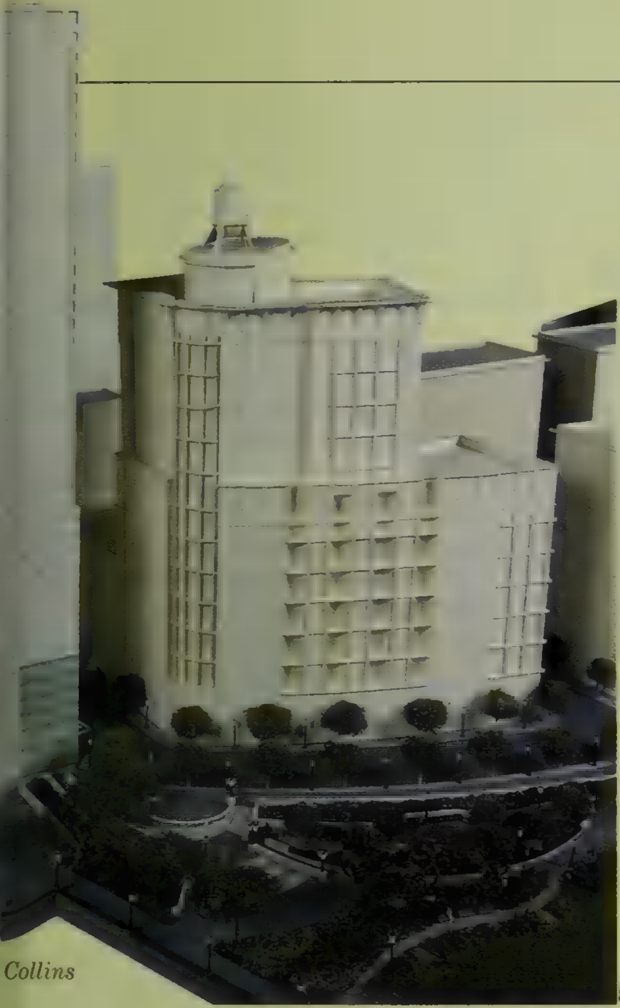
11

Building on infrastructure dollars in Los Angeles

Financed by federal and state transportation funds, the infrastructure for five towers was provided at Gateway Center, a combined bus, subway, and regional-rail facility (11). The headquarters for the local transit authority is housed in the completed tower. In downtown Los Angeles' depressed real-estate market, there's not yet much opportunity to add the commercial development anticipated by the urban-design team, Ehrenkrantz & Eckstut, but the site will ultimately link to a much more ambitious commercial and residential Alameda District Plan. The complex, which includes the historic Mission-style train station (not visible), is intended to appeal to gridlock-weary commuters.



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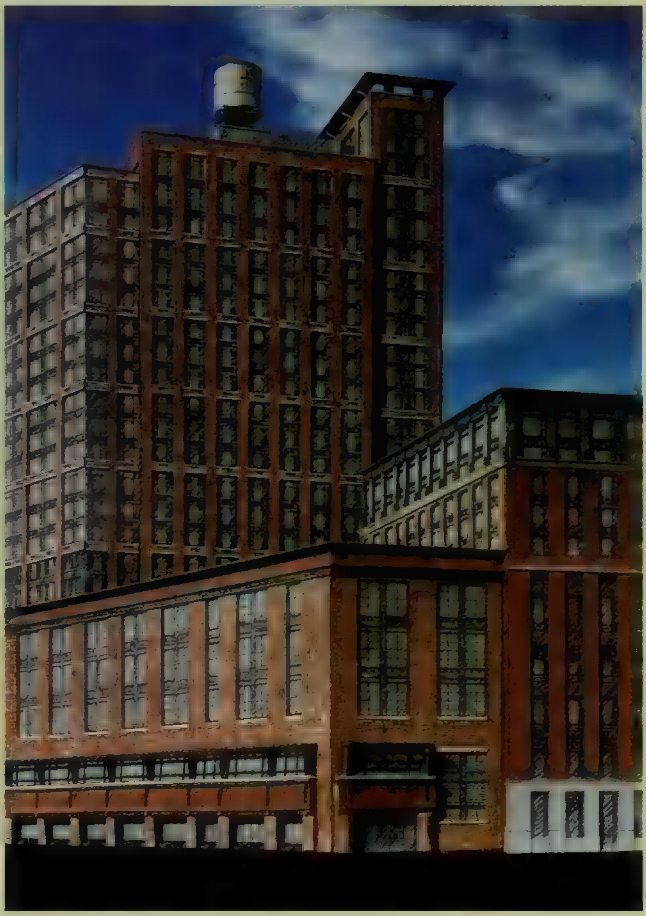

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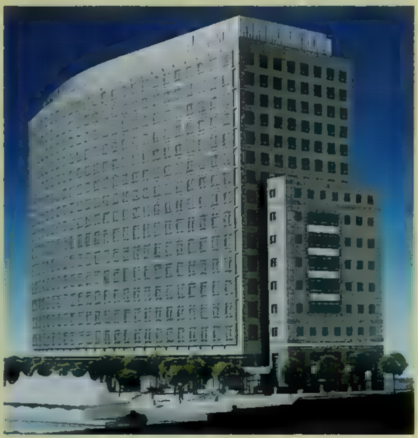

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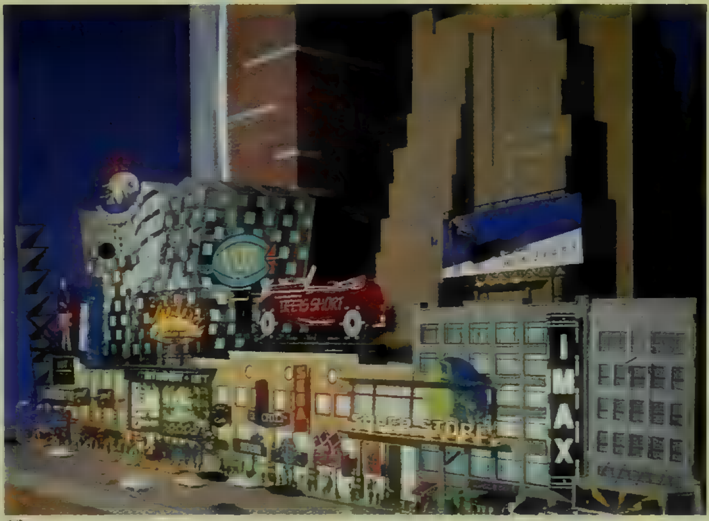
10

8. 42-story tower at left: Gruzen Samton, architect; 27-story tower at right: Robert A. M. Stern Architects and CK Architects.
9. Combined primary and intermediate school and residential tower: Richard Cook & Associates (exterior); Pasanella + Klien, Stolzman + Berg (school); CK Architects (tower).
10. Skidmore, Owings & Merrill's Mercantile Exchange.

Entertainment saves New York's Times Square Plan

Long-stalled, redevelopment of 42nd Street, at the heart of New York City's theater district, has taken off. Once intended to be financed privately, a cash injection from the state was needed to condemn land that lured Disney to commit to its Arquitectonica-designed hotel (12). A city and state loan also assists the Disney restoration of the spectacular New Amsterdam theater. A developer, Times Square Center Associates, paid over $200 million to underwrite the plan. It will be repaid by lower taxes on four large office towers. The first, built by another developer and designed by Fox & Fowle (14), is breaking ground. While other sites await a better market, the architect has designed short-term "taxpayers" (like 13).



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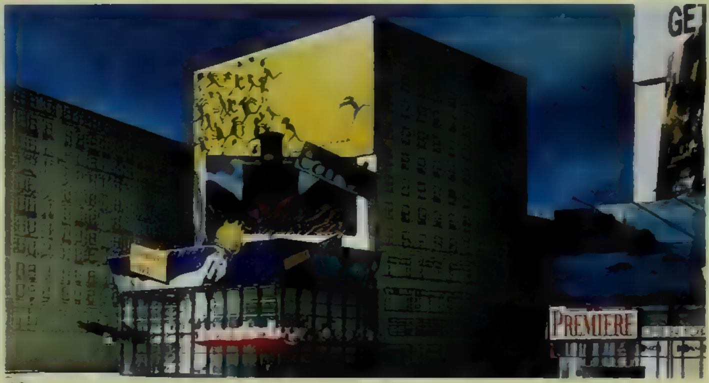

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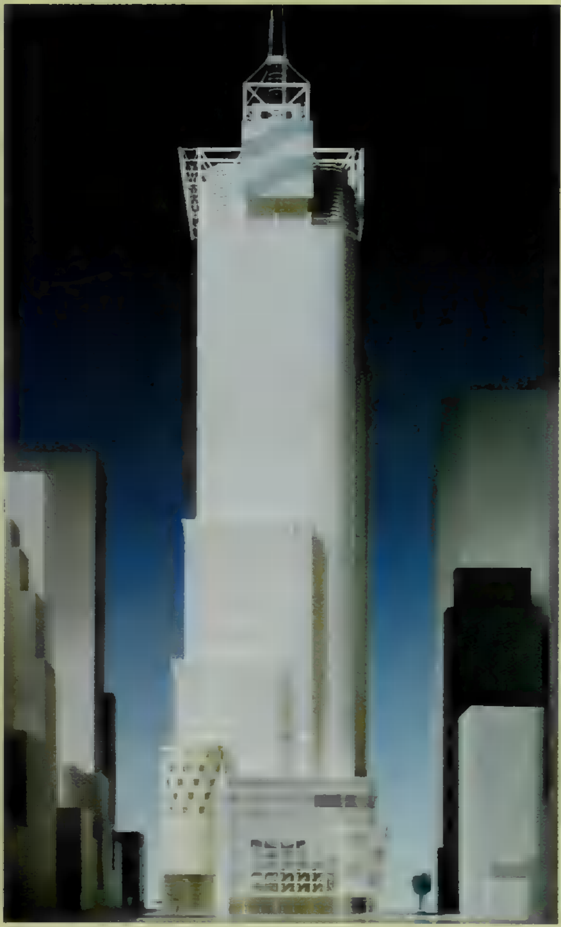

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14

Overcoming Pitfalls in Product Literature

By Barbara Heller

In selecting and specifying products, architects know they have to go beyond manufacturer's printed information and ask questions. Even though the vast majority of manufacturers are honest, careful, and forthcoming, there are some that are not. To protect yourself and your client, you should be aware of where the dangers lie and the types of investigation you can do.

Some manufacturers make it difficult to compare products. Sweet's catalog spokesman Daryl Brach says manufacturers are asked to give data in a range of standard, comparable categories, including suitable uses, costs, installation, and compliance with codes and standards. Brach says not all suppliers choose to provide all the information requested, so it's important to ask representatives of products under consideration to supply the missing data. [Sweet's is part of the McGraw-Hill Companies, which publishes RECORD.] Janet Diercks, editor of *Architect's First Source*, a compendium of product information from about 400 companies, says, "In presenting material to a visually oriented recipient, the very real need for well-organized technical information is overlooked or diminished." A clear understanding of the esthetic dimension of a product is important, but the architect's professional credibility depends on being able to offer expertise about product performance.

The architect should question imprecise language. Terms like elastomeric, plastic, cement-based, and latex-modified apply to a huge range of materials with an equally huge range of performance characteristics. Ask for specifics: what *kind* of elastomeric material; what sort of modifier? Though food manufacturers are legally required to truthfully list ingredients on their labels, building-product manufacturers are not.

Small-print disclaimers

Sometimes a manufacturer or trade associations will appear to be endorsing a concept, when actually they are not. An example of this is Brick Institute of America's (BIA) Tech Note 28B, "Brick Veneer/Steel Stud Panel Walls." After presenting 8 1/2 pages of detailed information and assembly recommendations for this controversial system, the Tech Note states, "Recognizing the brick-veneer/steel-stud wall system is a relatively recent innovation, having a great deal of potential for problems and distress . . . The Brick Institute of America suggests a minimum of annual inspections and ideally, seasonal inspections . . . [so] repairs and corrections can be instituted prior to the occurrence of severe problems."

There's no Consumer Reports for building products, but there are many ways to evaluate claims and make informed choices.

BIA seems to be saying that this brick assembly system presents a risk of failure, but the reader can't be sure. It's important to not only look for such small print, but to recognize, says Kimball Beasley, an investigative engineer with Wiss Janney Elstner, in Princeton, N.J., "when they put in that kind of disclaimer, I [the architect] have taken all responsibility."

Misrepresenting performance

A few manufacturers distort information. A studded-rubber flooring manufacturer's product literature states that the flooring has a slip resistance of 1.0 when tested in accordance with ASTM D 2047 in both wet and dry conditions. A Texas architect specified the flooring for a food-service area based on this representation, and was horrified when many visitors slipped and fell on the wet floor, including the county sheriff. The owner initiated legal action, accusing the architect of incompetence for specifying improper floor material. The text of ASTM D 2047 states that the test-method apparatus is "not suitable for use on wet, rough, or corrugated surfaces." An owner has legitimate reason to expect an architect to look beyond exaggerated advertising claims.

Responsible manufacturers, who conscientiously test their products and publish complete information about their materials, are victimized when they compete with products that can't demonstrate equal performance but are offered at lower prices. Some of the responsible manufacturers say the prevalence of fraud has made them withhold technical information. Todd Guntner, a sales representative for Tnemec Company, Inc., a manufacturer of high-performance paints, explained, "We don't automatically distribute our complete performance-testing data anymore because, on occasion, it appeared that other manufacturers copied our data on their letterhead for the purpose of getting an approval. We still provide it, but only when people ask for it." If something about the way the product is presented raises suspicion, it is appropriate for the architect to call the lab to verify that tests were actually performed and results accurately presented.

The Federal Trade Commission (FTC) is the federal agency with jurisdiction over unfair or deceptive commercial practices and acts. In 1993 and 1994, it filed complaints against the American Architectural Manufacturing Association (AAMA), a window manufacturer called Insulate Industries, and Pacific Inspection and Research Laboratory, Inc. (PIRL), a testing laboratory. According to the FTC complaints, Insulate supplied PIRL with windows that were enhanced, not standard production units. PIRL misrepresented the results of thermal tests on these windows as well as others, and AAMA repeatedly accredited PIRL even though PIRL did not satisfy AAMA's criteria for accreditation. Interestingly, the FTC alleged no collusion between these companies, even though it found irreg-

Architect Barbara Heller is president of Heller & Metzger, Washington, D.C., a specifications consulting firm, that also operates SpecLine, a telephone consulting service.

Continuing Education

AIA members can earn two AIA/ARCHITECTURAL RECORD continuing-education learning units by examining the learning objectives (page 135), reading the story on these pages, completing the questions, and filling out and returning the self-report form, page 137.

larities at each level. [If you feel that a man-
facturer—or any other business you deal
vith—is making deceptive claims or claims
hat are objective, but not properly support-
d, you can submit a written complaint to the
TC: Alain Scheer, Division of Service Indus-
ry Practices, FTC, Washington, DC 20580;
02/326-3321—ed.]

omputer specialists, stereo buffs, and car
nthusiasts have access to an abundance of
echnical information. Doctors can find out
verage-mortality figures for every proce-
lure. There is no such equivalent for those
electing building products. A *Consumer*
eports for building construction is unlikely,
ays Beasley. "Buildings are so variable and
omponents are hugely variable." Coming
losest is the *Journal of Performance of Con-*
tructed Facilities, which offers highly
echnical evaluations and case studies (Publi-
ations Fulfillment Department, ASCE, 345
East 47th Street, New York, NY 10017-2398).

etter information electronically?
Electronic databases may ease detailed
roduct evaluation. The providers' templates
hould present information in a consistently
rganized, readily comparable form. Gaps in,
or instance, "product limitations," will pre-
sumably be more obvious to the architect. As
n-line message boards and forums develop
urther, architects will be able to share infor-
mation, and pose queries directly to
manufacturers' technical staff and to inde-
endent experts.

And electronic technologies simply are able
o convey more information. SweetSource,
he CD-ROM version of Sweet's, has room
for the whole text of a manufacturer's recom-
mended three-part CSI-type specification, as
well as photos, drawings, and CAD files
800/227-0038). *Architect's First Source* plans
o merge its Web-site catalog data with CSI's
SpecData and ManuSpec services, although
he specifics of the linkage have yet to be
developed (800/395-1988). ArchitectREACH a
subscription-based, on-line service being pre-
pared for a late 1996 launch, promises to
include electronic product information, as
well as on-line consultations with experts and
a forum for users to share experiences. (600
Sumner Street, Stamford, CT 06901). ■

"Red Flags" in Product Data

When product selection contributes to a building failure, an investigative engineer is often called in. Kimball Beasley has done more than 800 investigations with the Princeton, N.J., office of Wiss Janney Elstner, based in Northbrook, Ill. He recommends specifiers pay particular attention to the following product-related items.

Missing information: A manufacturer may just throw a product into the marketplace and fail to give it technical support. You usually find this with small proprietary manufacturers. Research industry-association information and competing products to establish what tests are applicable. For too many products, suitable testing is not done, or testing was done, but not all the data is made available because it is not flattering to the product.

Simplistic testing: A manufacturer may offer test results showing that a wall system meets code requirements. The wall may still leak. Codes are focused on life safety, not serviceability. In fact, product lawsuits very seldom involve code violations.

Manufacturers may not conduct tests that uncover failure potential, such as accelerated-aging tests that analyze long-term durability or other tests that detect volumetric expansion problems. A component that loses strength over time can pose a danger. Stresses in a system that doesn't anticipate thermal expansion can be enough to pull the cladding off of building supports. Other systems fall into the cracks; standards can't keep up or the standard doesn't quite fit the product. Architects should ask the manufacturers to shoulder the burden of proving a new product works.

Composite systems: The components of a system may be provided by several manufacturers and each component may perform individually, but the entire system may suffer huge incompatibilities. For example, when you bond a cement backer board—with very good properties, but high shrinkage potential—with a tile facing that also has good properties but little shrinkage potential, you could develop destructive stresses.

Changes in formulations: A rule of thumb is always to look at previous installations of a product under consideration. It's also important to find out if or how the system may have changed. The manufacturer might say it has 50 years experience with the product, but a formulation or component may have changed; or the system is installed in a different combination. The manufacturer may say the change is negligible, but that is something you should decide.

Lack of redundancy: Be wary of products like proprietary windows or curtain walls that lack a secondary drainage path. Call in a technical expert to review the product or data if you have concerns.

Warranties: A specimen warranty offered by a manufacturer may only be a sample and not valid. Request a certified warranty be issued for the specific job. ■

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–Mike Mulvey, Kornberg Associates
(16-person AEC firm)

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–Jory Walker, MHTN Architects, Inc.
(90-person commercial architecture firm)

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–Steve Robertson, GAA Architects (7-person architectural firm)

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the cost of the platform upgrade to management."

–Tim Gess, Rockwell International (2500-person plant & machine layout & manufacturing firm)

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–Doug Skinner, Engberg-Anderson (36-person planning, architecture & design firm)

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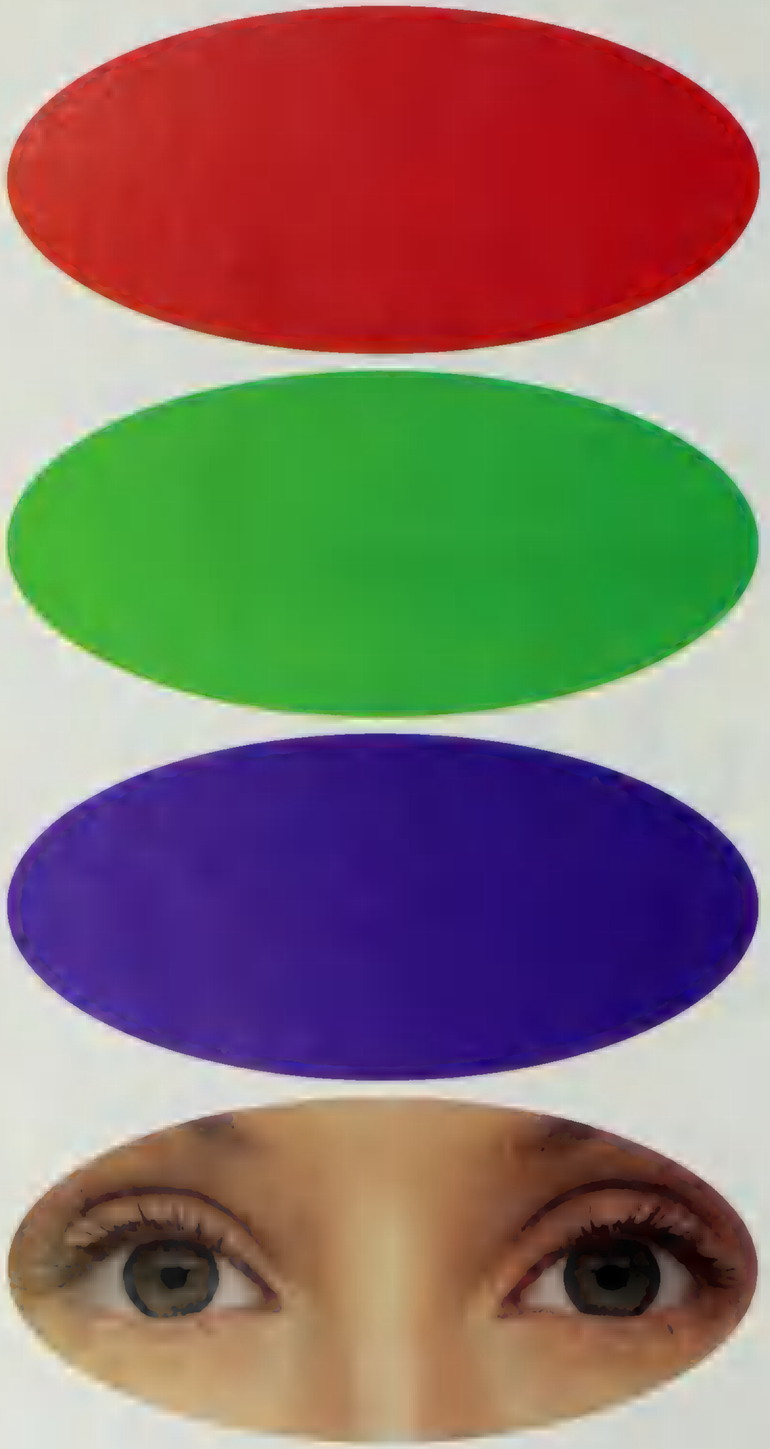

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Key #13132.

Circle 58 on inquiry card

Data Sources Star at A/E/C Systems

Sellers of data were on almost every aisle in Anaheim. Big or small, they're going to change the design process and the designer-client relationship.

By Steven S. Ross

The computers were faster and cheaper. So were the printers. Ways of keeping track of zillions of CAD files cluttering your networks were better. The 3D photorealistic images approached dazzling. But the biggest story at A/E/C Systems this year came from perhaps the smallest exhibitors: every one of them seems to be selling data—information on building products, furniture, construction costs (photos below). And there were many new tools for on-line collaboration between design-team members and clients.

The information can come to you on the Internet or on CD-ROM. It can come as raw data or as part of a sophisticated software package. You may not think you need it all, but lots of people are laying heavy bets that you do—or soon will. Those people work in organizations that include traditional publishers, vendors of construction products, CAD vendors, and professional societies such as the AIA.

The trend is not one that is relished by all. At a pre-conference gathering for architects from large firms, one groaned at the prospect. He was not alone. The point is that keeping competitive advantage gets harder as all architects, in small firms and large, gain access to much the same body of information at much the same low, but not trivial, cost. It also means that clients will expect a higher level of service. Why settle for one roof-material study, a client might say, if it is easy to provide dozens? And, Mr. or Ms. Architect, how about taking more responsibility for construction management, as-built documentation, and life-cycle costing?

As with so much of the news about information this past year, many of the offerings centered on the Internet—and particularly the World Wide Web. The excitement is not only about using the Web to gather information, it is also about using the Web to collaborate with clients and with other professionals across town, or across the planet.

Toward that end, Bentley Systems showed a copy of its MicroStation CAD software with a web browser built-in (Bentley licensed the Spyglass viewer). Release is planned for this fall. In the demo, a chair was pulled off a vendor's on-line catalog and inserted directly into the drawing of an airport lounge. Scaling issues still have to be addressed, but it is clear where the technology is leading.

Autodesk took another approach, a plug-in viewer for AutoCAD files distributed over the Internet. The viewer takes advantage of the ability of Netscape Navigator to accept such "helper" or "plug-in" applications almost automatically.

Technically, that leaves Bentley ahead in the race to the Internet—getting information off the Net is tougher than viewing files of a specific format. But Microsoft expects to make version 4.0 of its browser, Internet Explorer, the standard interface for all Windows software by early 1997. Both Bentley MicroStation and Autodesk AutoCAD will probably take advantage of it or something similar in short order.

In fact, C-TAD Systems showed another Internet trick. It added a virtual reality modeling language (VRML) module to its Look-In CAD conferencing software. The module plugs into Netscape Navigator, and turns 3D Catia, PDGS, or IGES files into Web-standard VRML files that can be viewed in 3D on the Internet. The plug-in viewer is free; the software at the server costs $9,950.

New or almost-new vendor firms offered ways for design professionals to collaborate on the web. Among them were Novi Mundi, self-described as "designers and constructors in cyberspace." The company's Web address (URL) is http://novimundi.com; the product is called aecteam.net.

Others aiming at that market included:

◆ FMLink, which demonstrated its fee-based Internet web site for facilities- and property managers, http://www.fmlink.com. It houses more than two dozen data sets. You get 30 days free access.

◆ InterPRO Resources, which demonstrated its Web site for the construction industry.

• R.S. Means, the construction-cost data people, showed its free Web site, which allows users to download and test numerous demos of estimating packages from Timberline, US

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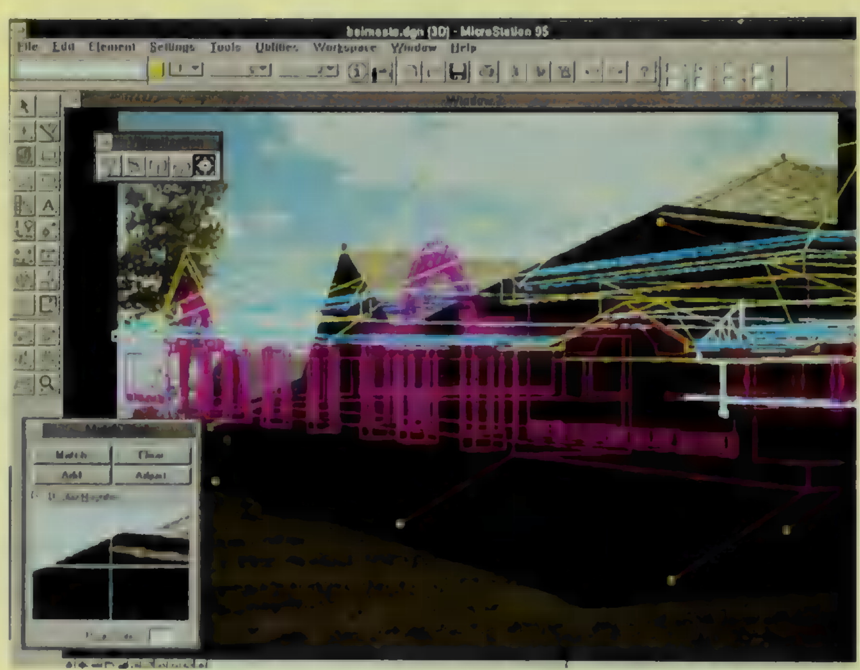
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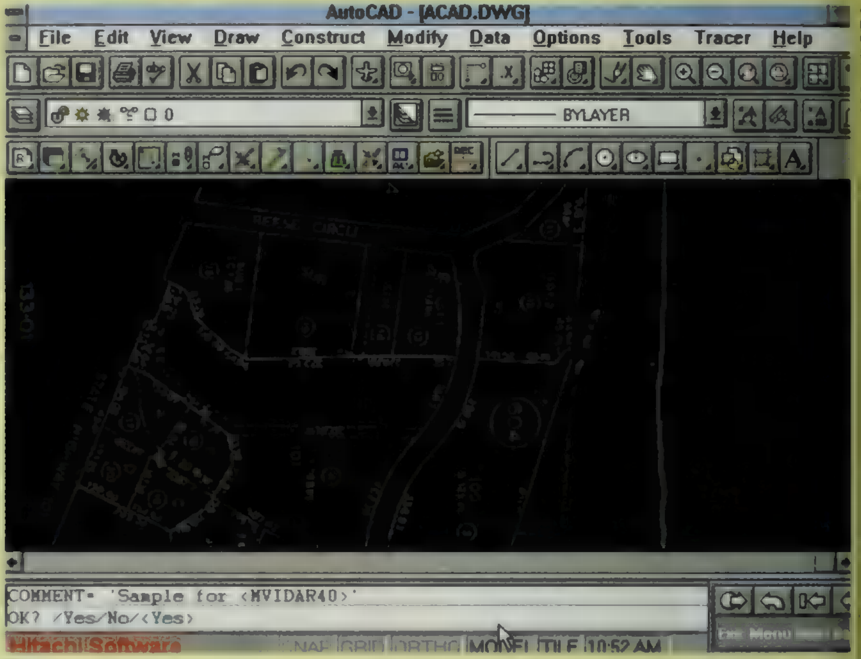
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OK? /Yes/No/<Yes>
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Cost, BSD, Eagle Point, and others. The URL is http://www.rsmeans.com.

- The AIA is at http://www.aia.org.

- Some local AIA chapters, including the Boston Society of Architects, with its BSA Online at http://www.architects.org.

- Framework Technologies Corporation showed collaboration tools on the World Wide Web and company networks, at http://www.frametech.com.

Other approaches

Other offerings give some idea of the approaches that were shown toward providing information to design professionals:

A-E&C InfoNET runs an on-line BBS (bulletin board service) with project leads, marketing studies, and so forth.
(Phone: 602/[illegible]-5140)

American Digital Cartography sells digital maps.
(Phone: 414/733-6678)

Andersen Windows showed a new standalone Windows and Macintosh application for creating window patterns; plan, elevation and details export via DXF to CAD software.
(Phone: 800/426-7691)

Arcom Master Systems showed enhancements for MasterSpec, including its Small Project Specifications.
(Phone: 800/424-5080)

Autodesk Press showed its "Inside Track" training materials and McGraw-Hill/Autodesk Data Publishing showed its DesignBlocks line of CD-ROM-based resources for architecture and other disciplines (the CDs were reviewed in RECORD, April 1996, page 59).
(Phone: 800/347-7707)

BST Consultants showed project-analysis and financial-management tools.
(Phone: 800/726-3300)

Building Systems Design showed its Windows-based SpecLink (reviewed in RECORD, May 1996, page 52), CostLink, and life-cycle costing tools. BSD estimating software can also be seen on the R.S. Means web site.
(Phone: 404/876-4700)

The Canadian Wood Council offers software that aids wood-based design tasks.
(Phone: 613/247-7077)

Compu-tecture offered MAD-CAD, for access to code requirements, building technology, and specifications.
(Phone: 301/770-8595)

Construction Market Data offers sales leads and market analysis information.
Phone: (800/992-7575)

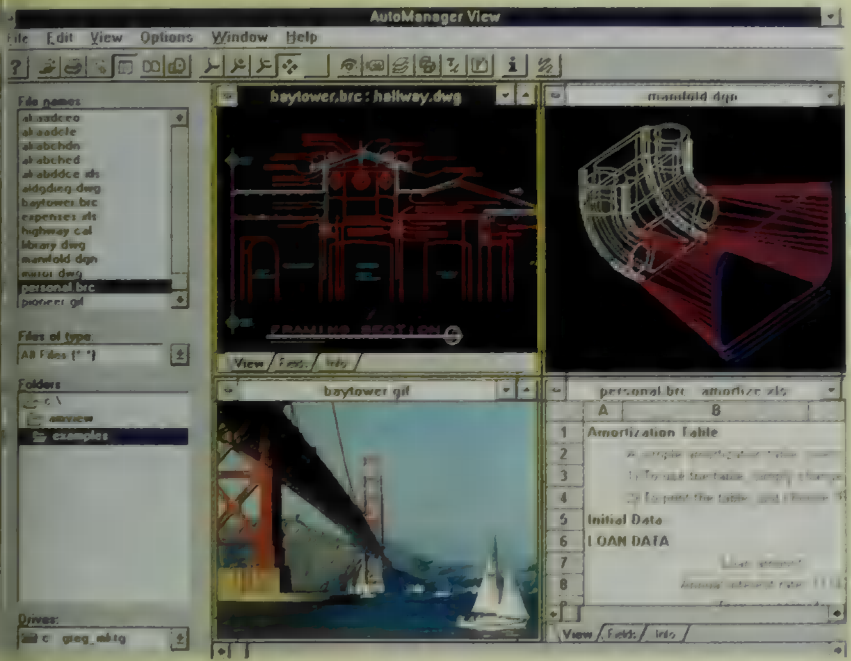
Craftsman Book Company showed a Windows-based estimating program with 85,000-item database on CD-ROM. Its CD Estimator includes electronic data from six construction-cost databases the firm publishes, such as new construction, remodeling, plumbing, and hvac. The CD includes free, quarterly, on-line updates and an 80-minute instructional video.
(Phone: 619/438-7828 ext. 305)

ViaGrafix (the same folks who sell DesignCAD) showed hundreds of video-training courses and 2D/3D symbol libraries.
(Phone: 918/825-7555)

ESRI, the GIS software people, showed an ever-widening range of map data products. (ArcView was reviewed in RECORD, June 1996, page 54.)
(Phone: 909/793-2853)

Kalin Associates showed its disk-based GreenSpec for environmental products; the firm also does CSI and MasterSpec on disk.
(Phone: 617/964-5477)

John Wiley & Sons introduced its Architectural Graphic Standards on CD-ROM—10,000 drawings from the Ramsey/Sleeper classic book's Ninth Edition.



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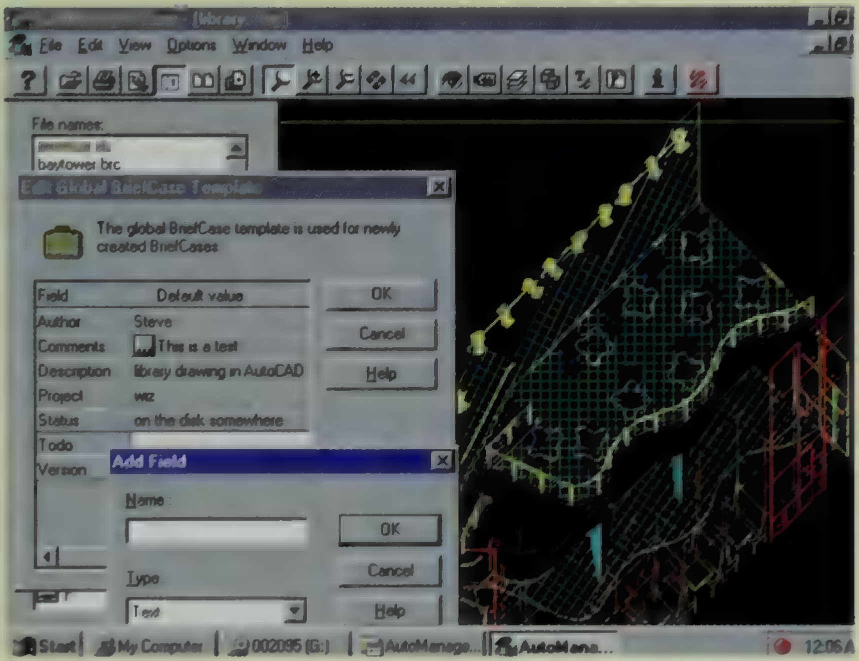
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(Phone: 800/225-5945)

The Illuminating Engineering Society of North America, presented new extensions to its popular IES lighting contour standards and file format.
(Phone: 212/248-5000 ext. 110)

McGraw-Hill's F.W. Dodge division showed market-analysis information available on-line and through other means.
(Phone: 212/512-6184)

National Institute of Building Sciences is a long-standing publisher of CD-ROM-based data.
(Phone: 202/289-7800)

Industry alliance

The Industry Alliance for Interoperability emerged this year as a major, and multi-company, presence after a shaky start at last year's A/E/C Systems meeting, where it had been perceived by many as more an Autodesk marketing ploy than the birth of a movement. At least 20 IAI members exhibited at the show, including AIA MasterSpec, Bentley, KETIV, and Nemetschek.

In March, IAI and the older (and much more slowly moving) Standard for the Exchange of Product model-data process (STEP) agreed to cooperate. STEP representatives were present, and active, at IAI's press conference at A/E/C Systems. IAI remains a strongly commercial organization with emphasis on early commercialization of technology. STEP is a more theoretical group. But STEP will benefit from access to practitioners and IAI gains access to STEP's modeling expertise.

The idea is to improve drawings so that they are more than a collection of lines. Instead, the lines would represent "objects" that would behave in the drawing somewhat the same as they react in real life.

IAI announced "advanced release" (beta copies, essentially) of its first Industry Foundation Classes. In computer-speak, an IFC is a listing of "intelligence" that all similar objects have. Software that obeys the rules would turn that collection of lines, for instance, into a door that knows how it fits into a wall, its weight and fire rating, and how to position associated non-door items such as a wall switch nearby.

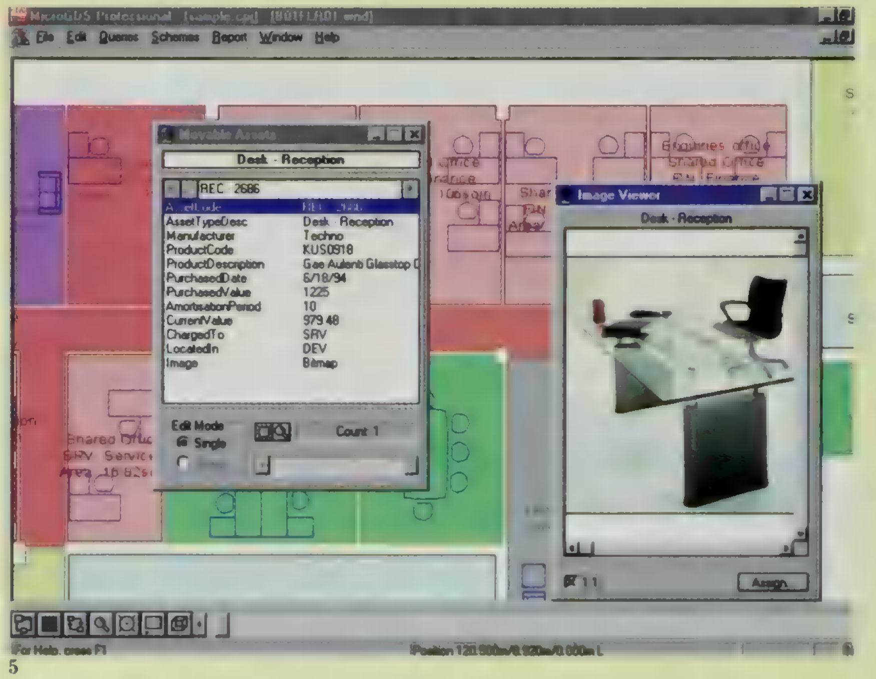
For architecture, Release 1.0 covers bubble diagramming for space layout, wall layout, door and window insertion into walls, and door and window scheduling. In computer-speak, again, a set of Industry Foundation Classes for a specific industry is called a "domain." Thus, "architecture" is one "domain" of IFCs for IAI. Get it?

For the hvac domain, the release covers elimination of manual area takeoffs for load calculations, equipment selection, and automated generation of equipment-schedule sheets. There's also space management for facility-management tasks, and construction quantities takeoff (for cost estimation). and construction scheduling for the construction domain.

1. Bentley Systems' MicroStation MasterPiece with photomatch capability places a design model in an existing photo.
2. Hitachi Software has upgraded its DOS and Windows 3.1 AutoCAD 12 viewer to be compatible with AutoCAD 13 and Windows NT95.
3., 4. Cyco International's new AutoManager View handles 200 file formats.

One firm, Naoki Systems, actually showed software based on the foundation classes, although the preliminary IFCs for the domains above have only just been released, and some pieces are not scheduled for release until September.

The firm's computer-aided facilities management package, due out in August at a price of $7,500 (Canadian), has three AutoCAD ARX add-on modules. One works with conventional CAD drawings. One is a knowledge-based system that allows you to map existing data to IFC objects. If you delete a wall, for instance, the space it defines and the furniture within the space will behave accordingly. Finally, Naoki supplies decision-support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Desk - Reception

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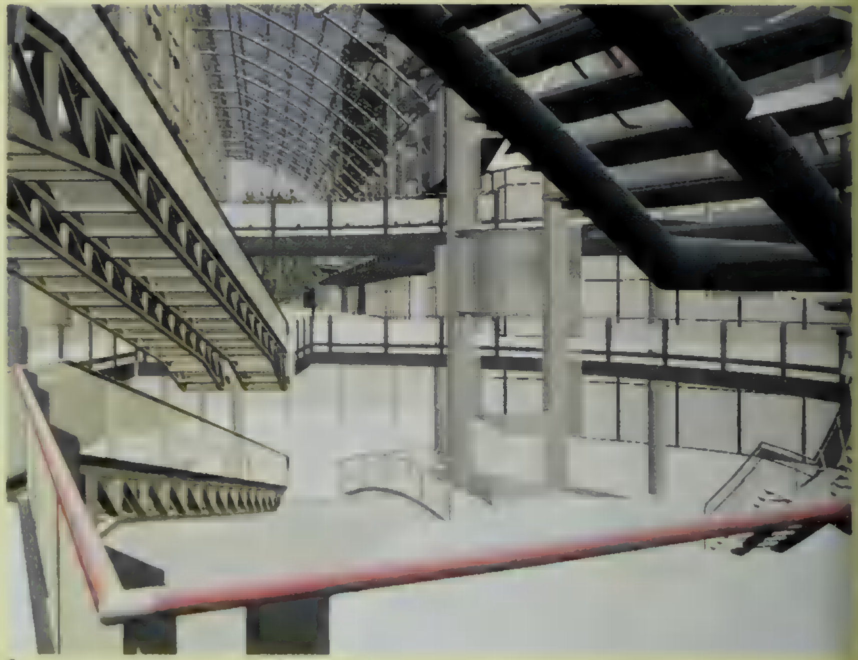

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modules for predictive analysis.
(Phone: 514/441-1011)

Bentley's TriSpecta, a rewrite of European software, gives 3D objects in MicroStation enough intelligence to draw complex ducts and other construction features that behave on paper in logical ways.
(Phone: 800/BENTLEY)

ArTeN TMS AddCAD, the top-selling AutoCAD add-on in the Italian market, uses the Autodesk object-oriented ARX hooks for parametric design problems. That is, you can specify an object in terms of a set of dimension equations so that, for instance, a beam grows in thickness as it gets longer.
(Phone: 31-532-765636)

AcadGraph showed its Palladio AutoCAD add-on from Germany, with the same aim in mind—to assemble drawings out of intelligent "objects."
(Phone: 415/[illegible]-0201)

Bentley, which hopes to put object intelligence directly into MicroStation drawings through its Objective MDL, announced cooperation with Nemetschek (the people who sell AllPlan). [illegible] has been working on object [illegible] for some time, and is in a position [illegible] Bentley, although the agreement [illegible] for TriSpective-class add-on 3D soft[illegible]
(Nemetschek—Phone: 415/289-3752)

(Bentley—Phone: 800/BENTLEY)

Autodesk is relying on third-party vendors to add intelligence in part through separate programs that the drawings would access—a less risky approach that has kept it in the lead so far in this area. (See last year's A/E/C coverage in RECORD, August 1995, pages 32-37 for details.)
(Phone: 800/964-6432)

Document management

A good document-management system must allow you to keep track of various document versions and changes, to view documents in a variety of formats—including CAD formats, to suggest changes and make notes in existing documents ("redline"), and to track associated data. That is, if a spreadsheet file is referenced in a CAD drawing file, you should be able to view it and add redline comments. It should also allow hard-copy output. Needless to say, your document-management software should be network-aware, secure, and easy to use (lots of low-level people need access to your files).

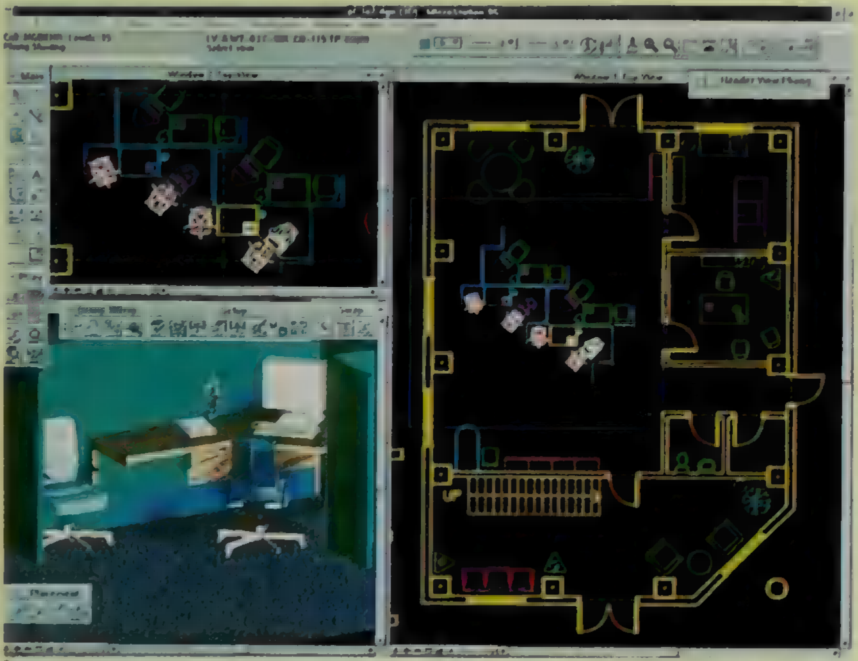
Ideally, it should be OLE-aware, so it can easily share documents with other OLE-aware software in Windows. And it should be Open Doc aware to do the same thing in Unix.

The World Wide Web has injected some new requirements: Autodesk has its DWF (Drawing Web Format, dubbed "Dwarf"), which allows the inclusion of hypertext links in the drawing. SoftSource has its SVF (Simple Vector Format) as well.

Tailor Made Software announced at A/E/C that it can or soon will convert between all web vector formats and DXF, DWG, Microsoft ActiveCGM, and HPGL/2. Its Cad-WebBridge is due late this summer. AutoCAD Release 12 to and from DWF was demonstrated at the show. The firm also has a cheap $75 utility called Linked List that examines link and table information in DXF and DWG files.
(Phone: 206/631-1513)

In short, document management software today is more complicated than CAD software was a few years ago.

Cyco International showed its new AutoManager View; it is to replace Cyco's existing viewers, AutoManager Classic, and AutoManager Professional. It handles about 200 file formats. There's a "briefcase" feature that allows you to compress files and bundle them together—even password-protect them—for e-mail or network, and exchange them with AutoManager WorkFlow, Cyco's high-end document manager. WorkFlow works in Windows or DOS, but View works only in Windows.
(Phone: 404/634-3302)



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immetry Systems' AutoVue and AutoVue rofessional handle more that 150 file rmats, including AutoCAD DWG and ewlett Packard PCL5. The firm announced ıat Corel had licensed its DWG translators ı that CorelCAD can read and write utoCAD files. The AutoVue package was :heduled, as we went to press, to include a etscape Navigator plug-in viewer that lows you to see all 150 AutoVue formats in ı-line web pages. AutoView is available in OS, Windows, and Unix versions.
'hone: 514/735-3219)

xpert Graphics showed its Rasterex xEDM document-management system—ith Windows-based tools for indexing and liting scanned documents as well as odules for viewing, redlining, and plotting.
'hone: 800/648-7249)

ocumentum showed several solutions for ıe architectural market. CADspace is a link :tween its data-management technology ıd programs like AutoCAD and MicroSta- ɔn on Sun Microsystems platforms. ccelera is a Web server that allows viewing ımpatible documents with a Web browser.
'hone: 510/463-1800)

alix, which has been well known for ocStor, its Sun Solaris (Unix) document anagement database solutions, announced the show that it would also support the ın x86 Pentium platform as well. This brings rather robust Unix-style file security and tracking to Windows machines.
(Phone: 847/678-5600)

For those using the IBM AIX environment for such CAD software as A&ES, CAD Tech Resources showed its ForeSite drawing management system. Version 2.3 is expected late this fall.
(Phone: 203/655-6600)

For those who need to customize a viewer to match a complex data system, Spicer Corp. offers Imagination document imaging software; it can view about 100 file formats on Windows, Macintosh, and Unix platforms. The system has over 300 API commands for various features, especially in Windows and on the Mac.
(Phone: 519/748-2462

Hitachi Software showed upgraded versions of its DOS and Windows 3.1 AutoCAD 12 V/Image viewer/converter software, with AutoCAD 13 viewers and Windows NT/95 compatibility due for release as we went to press. This package works inside AutoCAD.
(Phone: 303/449-3200)

GTX released version 3.0 of its "paper to CAD" raster editing and conversion software, GTXRaster CAD, also running inside AutoCAD Release 13. There's an add-on optical character recognition module available for scanned text in drawings, and a "learning mode" that can adapt to specific drafting styles.
(Phone: 800/879-8284)

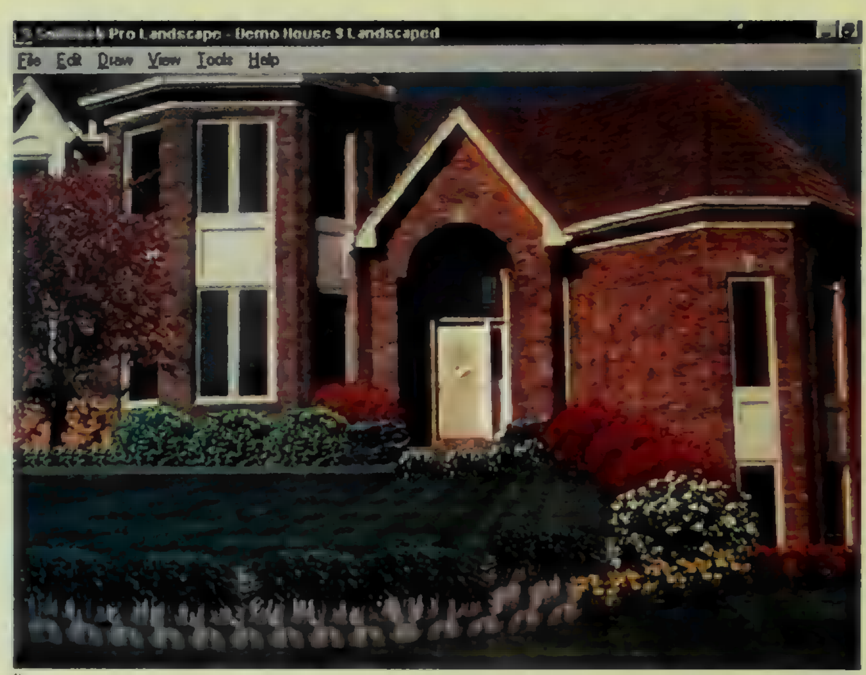
5. *Micro GDS's Catena FM is configured so that a photo of a product pops up along with the pertinent data.*
6. *Nemetschek's AllPlan object programming.*
7. *Cimarron's watercolor-look software.*
8. *Intergraph's Project Architect and Project Layout run on Microsoft Windows 95.*

Facilities management/ project planning/accounting

The software vendors have been saying for years that any minutiae about conception, construction, and maintenance of a building and its contents can be tracked. But until recently, who wanted to? Now vendors are coming up with seductively easy ways to do so—and thus to deliver new services to clients.

Part of the advance is due to pressure caused by the needs of the Facilities CAD2 contract competition. Cordant exhibited solutions assembled by its Team Cordant for facilities management, construction, GIS, and so forth.

The biggest barrier has been the difficulty of using project-planner databases for more mundane accounting and contractor-project team communication purposes, while preserving a secure audit trail. Several


Pro Landscape - Demo House 3 Landscaped
File Edit Draw View Tools Help

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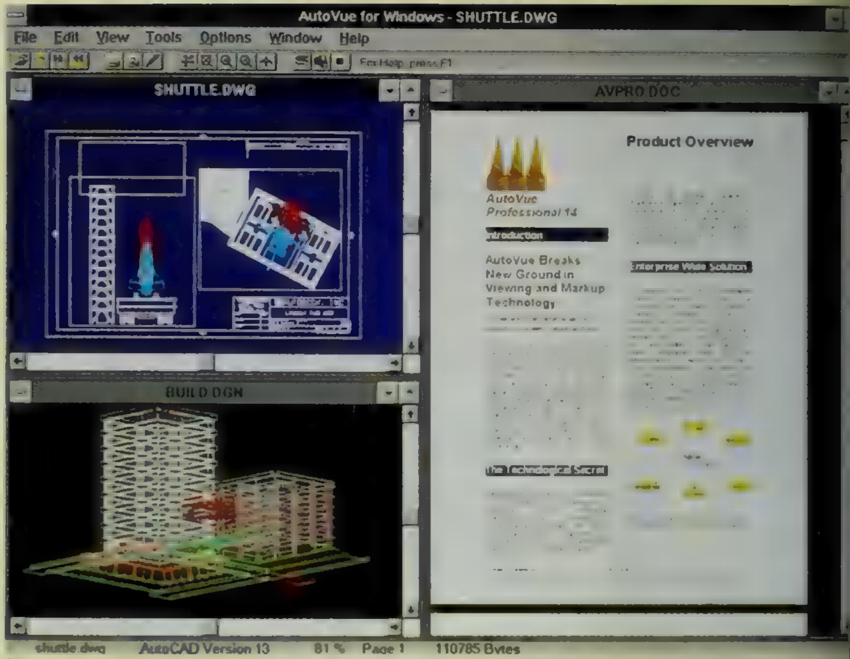

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companies breached the barrier. Primavera has dubbed all of this "Concentric Project Management," providing interoperable solutions appropriate to different levels of management and different professional responsibilities.

Primavera and IBM showed their "Contractor's Desktop," combining Primavera's Expedition contract-control software and SureTrak Project Manager with IBM's Lotus SmartSuite and Notes. Primavera also showed a customized version of TimeSheet Professional, for time and activity tracking, as a front-end to Primavera Project Planner.
(Phone: 610/667-8600)

ACCI Business Systems debuted its PMAS Windows project accounting package. ACCI has included electronic timesheets for awhile.
(Phone, 800/488-0601)

Deltek Systems showed the latest version, 2.0, of its Costpoint project-accounting system, also with an electronic timesheet add-on. This software family has report-writer and data-analysis add-ons as well.
(Phone: 800/868-2444)

Also in this category is SOTA Software Systems, with its AegisC/S integrated project-management tools. The underlying engine, as for many products this year, is Microsoft's Access database.
(Phone: 800/770-7682)

A/E Management Services demonstrated the new Windows version of its RFP package, a super way to assemble SF 254/255s and similar marketing documents out of a marketing database.
(Phone: 313/761-9410)

Harper and Shuman announced CFMS/Advantage, a more flexible, Windows-based version of the popular MICRO/CFMS project accounting package. It won't actually ship until fall. Version 4.0 of CFMS/RD, an Oracle-database accounting package particularly useful for geographically dispersed offices, and will ship by September, H&S says.
(Phone: 717/492-4410)

Innovative Tech Systems showed its new Span-FM for Windows; version 6.2 was scheduled for August release. There are modules for space analysis, asset management, maintenance, budgeting, CAD integration, and more.
(Phone: 215/441-5600)

Scitor showed Project Scheduler 6, which first appeared last year, and talked up broader management uses.
(Phone: 800/533-9876)

Two CAD vendors with Windows-based products that have strong database "hooks" and a British heritage have moved ever more strongly into the facilities-management end of the business: Drawbase Software showed its Drawbase, now with ODBC links. ODBC databases have become a Windows standard. (Phone: 617/868-6003); Graphic Data Systems presented a new facilities-management package, CatenaFM, which links to MicroGDS through ODBC as well.
(Phone: 800/678-4120)

9. *Softdesk's ProLandscape allows arrangement of outdoor plantings from a digitized photo of actual work location.*
10. *Cimmetry's AutoVue and AutoVue Professional will include Netscape Navigator plug-in viewer with views of 150 AutoVue formats in on-line web pages.*

Next month

A report on inkjet plotters and display hardware shown at A/E/C Systems.

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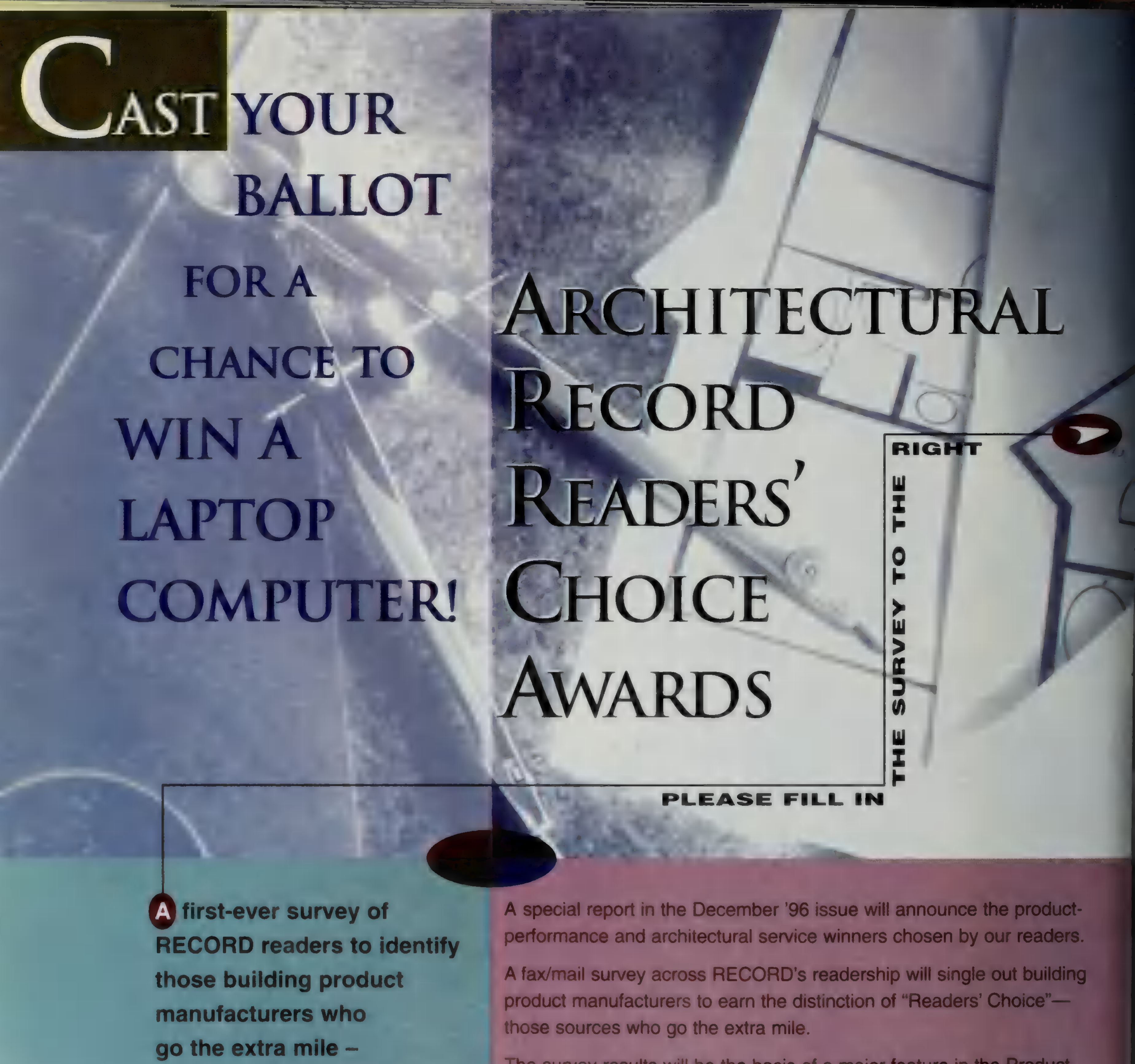

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A first-ever survey of RECORD readers to identify those building product manufacturers who go the extra mile – providing excellence in building products and service support.

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The survey results will be the basis of a major feature in the Product Reports Segment of the December 1996 issue.

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To cast your votes and enter to win a laptop computer, simply fill in and mail the postage-paid Readers' Choice Awards Survey bound into the issue at right or fax it to 212-512-4256 by September 16, 1996.

Drawing rules:

No purchase necessary. Odds of winning depend on the number of entries received. All applicable taxes are the sole responsibility of the winner. Entry must be received by September 16, 1996. Sponsor not responsible for the late, misdirected or illegible entries. Contest open to all residents of continental U.S. 18 years and older. Drawing will be held on December 5, 1996 and the winner will be notified by mail. One entry per person. For the name of the winner, send a self-addressed, stamped envelope after December 30, 1996 to Architectural Record, Laptop Drawing, Attention: Laura Viscusi – 41st floor, 1221 Avenue of the Americas, New York, New York 10020. All federal, state and/local laws and regulations apply. Void where prohibited by law. To claim prize, winner must supply affidavit of eligibility and promotional release. Employees and families of employees of The McGraw-Hill Companies, Inc. and its advertising agencies are not eligible. The winner will receive one [illegible] Laptop computer. Value: approx. $3,000.

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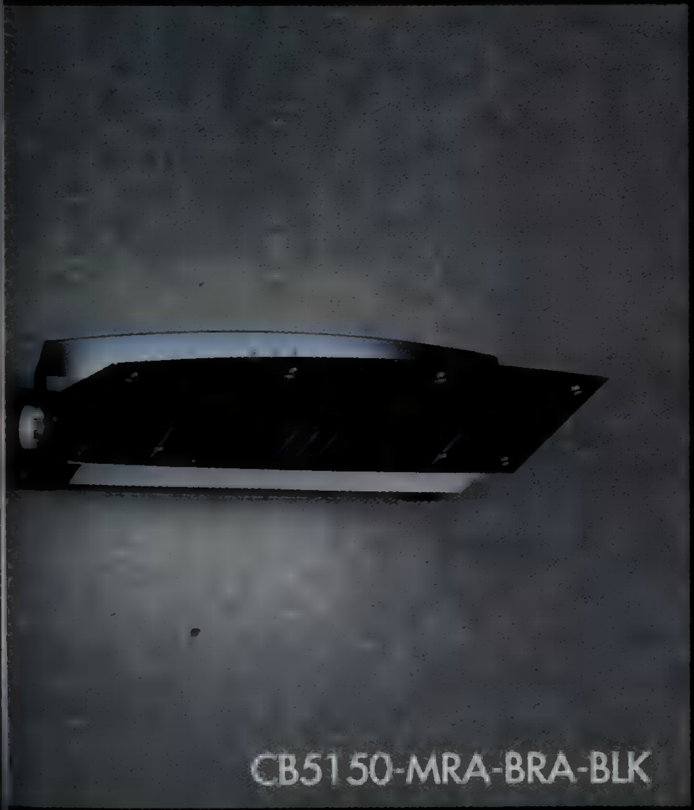
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Trade Show Survey

New building products and contract furnishings were exhibited at several major trade shows in the first half of 1996, including the American Institute of Architects (May, in Minneapolis; next year, New Orleans), the Construction Specifications Institute (June, in Denver; Orlando in 1997) and NEOCON (always Chicago in June). We've chosen examples of unusual interest to include in this survey.

180. Flexible color options

A heavy-duty entrance system, the Therma Stile door incorporates a dual glazing gasket that lets the designer specify different paint colors on the interior and exterior. Shown here: Hartford Green outside, Pueblo Tan inside. Doors come in three stile widths for single and double-leaf configurations. 800/221-4169. EFCO Corp., Monett, Mo.

181. Flexible workspace

Reasons by Trans-wall is an interchangeable panel system designed to suit today's data-intensive and churn-prone office environment. Fabric-faced sections 4-in.-thick are easy to stack and snap together; work surfaces and storage units slide into place anywhere along a panel's horizontal support rail. Wire-connection and cable-space fittings meet all Category 5 and fiber-optic requirements, with labor-saving features said to be especially useful for "hoteling" applications. 610/429-3466. Reasons, Inc., West Chester, Pa.

182. Rice-paper safety glass

A new Sumiglass decorative option, made-to-size panels have real rice paper sandwiched between flat glass in a five-layer laminating process. Available in two degrees of opacity, rice-paper glass transmits light while obscuring detail. Other options: frosted or fabric interlayers. Suggested uses: shower doors, partitions, windows, and sidelights. 800/870-2519. North American Glass Fabrication, Sumiglas Div., Benton Harbor, Mich.

183. Modular private office

Almost an office in a box, ready to set up or move at the drop of a pink slip, the Kyo Cabin has walls of steel-framed, foil-clad, medium-density fiberboard and Lexan "windows" and sliding doors, topped by (optional) cantilevered ambient-light and sound diffusers that form a partial ceiling enclosure. Modular metal raceways carry multicircuit cabling and power outlets. The freestanding basic Cabin is 8- by 8-ft, but other sizes and configurations are possible. 512/310-9021. Kyo Corp., Round Rock, Tex.

184. Recessed ADA-compliant exit

Adams Rite introduced a low-profile bar that maximizes the clear-opening width of hollow-metal and metal-stile glass doors. Protruding only one inch from the door surface, the bar is nearly flush when depressed or dogged. Available in mortise and concealed-rod styles, unit exceeds UL burglary-resistant standards, and can be specified in top-rod-only and fire-rated versions. Comes in 10 standard finishes, as well as custom-order options. 800/872-3267. Adams Rite Mfg. Co., City of Industry, Calif.

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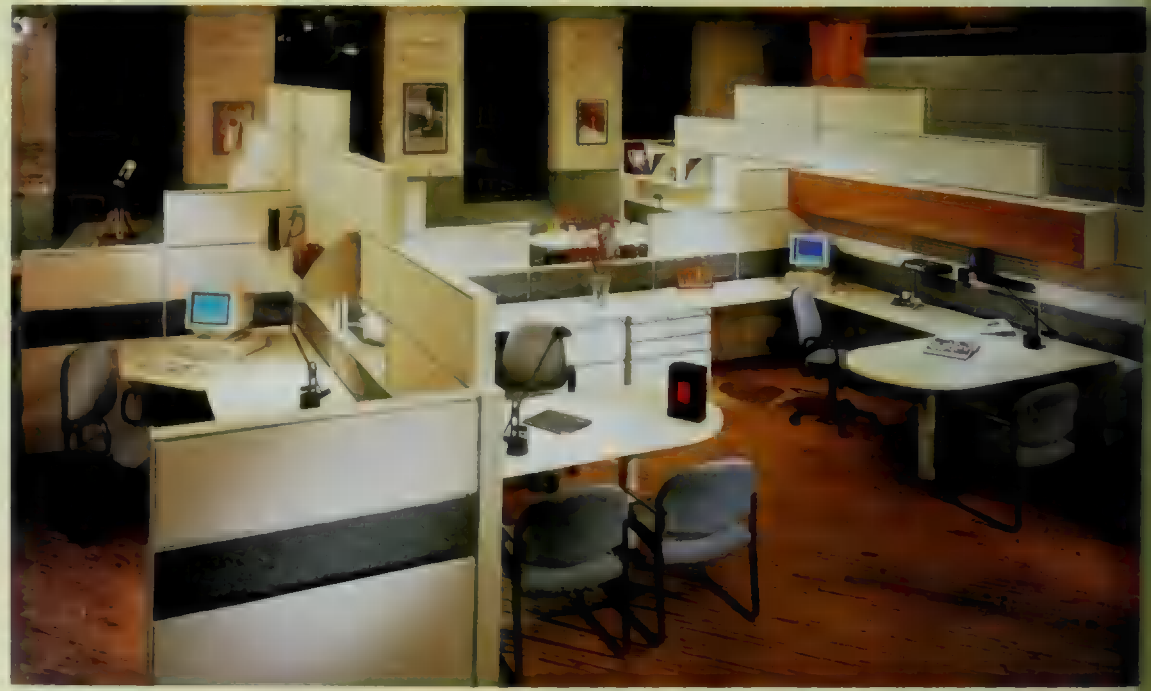

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185. High-performance, neutral-tint

A non-reflective, tinted, float glass, SuperGrey is said to minimize the effect of solar glare on interior tasks, such as VDT-screen use, and to reduce the need for blinds or other shading devices. Glazed in an IG unit with a clear inboard light, it has a low shading coefficient of 0.23. With a low interior reflectance as well, the glass won't distort views to the outside. Its neutral-black appearance is said to complement many exterior cladding materials. 419/247-4721. Pilkington Libbey-Owens-Ford Co., Toledo.

186. Heavy-use surfacing

Intended for commercial and institutional applications where solid-surface material might be appropriate but too costly for the budget, Nuvel sheet gives a seamless look to large-scale casegoods such as these sweeping seminar-room desks designed by Jung Brannen Associates. The matte-finish material comes in seven "fleck" colors; maintenance requires only a mild abrasive cleanser. Resin itself is made by General Electric. 800/FORMICA. Formica Corp., Cincinnati.

Joan F. Blatterman

he first half of the year has produced a bumper crop of innovative uilding products—problem-solving new glass, in particular. Here's a armchair tour of the trade show circuit.

185

3

186

180. EFCO/AIA
181. Trendwall/NEOCON
182. North American Glass Fabrication/CSI
183. Kyo/NEOCON
184. AdamsRite/CSI
185. Pilkington Libbey Owens Ford/National Glass Association
186. Formica-GE/CSI

187. Glass-design CD-ROM
Viracon—a major fabricator of tempered, laminated, insulating, security, silkscreened, privacy, and high-performance coated-glass products—demonstrated GlassGear, an interactive CD-ROM described as an innovative approach to specifying glass. The PC/Mac disk offers color-photo tours of worldwide glazing designs, technical glass information, and solar-performance data. It can also be used as a presentation tool to experiment with different vision and spandrel-glass colors. No charge. 800/533-2080. Viracon, Owatonna, Minn.

188. Textured architectural glass
New FosilGlas has the look and texture of kiln-formed glass, but is made with a less expensive technology to be priced from $20 to $30 psf. This full-service (25 designers and artisans) Chicago source creates carved, painted, stained, leaded, and etched architectural glass on a custom basis, and promises samples within one week at no initial charge. 312/278-4660. Skyline Design, Chicago.

189. Site furnishings
Made of satin-finish stainless steel with colorful painted-metal, aggregate, or fiberglass trim elements, Versit planters, trash receptacles, and ash urns complement other site furniture, such as this maker's Versit seating. All designs come in round or square-edged shapes in a range of sizes; either perforated or embossed patterns can be selected. Color catalog offered. 800/451-0410. Forms+Surfaces, Santa Barbara, Calif.

190. Lecture-hall seating
A fixed-beam configuration of the Acton Chair, swing-away model 275 has a pivoting, cantilevered base that returns to a forward-facing position when the seat isn't occupied. The attached table can be straight-edged, as shown, or have a radiused curve. Modesty panels and folding tablet arms are options. Seating can also be specified for individual fixed mounting, or in a stacking version. 800/748-0268, x6461. AmericanSeating, Grand Rapids, Mich.

191. Concealed brick-lintel system
Incorporating fasteners and anchors originally created for custom-profile brickwork spans, Halfen has standardized a reinforced lintel system that supports brick above openings without any visible metal components detracting from the appearance of the masonry. A steel spine spans the opening, resting on bearing plates at each end; special "horseshoe" plates hang from the spine and carry individual rods that "stitch" cored bricks together. Each lintel support is engineered to suit an installation's specific design requirements; the system is suitable for spans up to 10 feet, assuming typical arching action and single-brick veneer. Constructions include stepped-brick over-window treatments (191-a), 90-degree and other arches (191-b). All components are grade-304 stainless steel or hot-dipped galvanized, as required. 800/323-6896. Halfen Anchoring Systems, Converse, Texas.

192. Light-diffusing insulated glass
The Technical Glass Division of Schott Corporation, the North American arm of the large German glass manufacturer, demonstrated several innovative architectural glazings products developed in Europe [RECORD, May 1994, page 41] and now being actively marketed in the U.S. Shown is Okalux, as used by Arata Isozaki in a pyramidal skylight at Los Angeles MOCA, one of the first U.S. applications of this insulating, light-diffusing panel. Sunlight is transmitted through a layer of hollow-tubeglass-fiber fill sealed between two lights of laminated safety glass. The fill provides sound and thermal insulation, and diffuses glare-free, shadowless light with true color-rendition characteristics. Shading coefficients can be fine-tuned to suit each project. A variety of sizes and shapes will accommodate ridges, eaves, valleys, joints, and other configurations. 914/968-8900. Schott Corp., Yonkers, N.Y.

193. Best of both worlds...
From Weather Shield, the ProShield window is made with an all-pine interior and a weatherproof, low-maintenance vinyl exterior. Wood surfaces can be specified ready for on-site painting or stain, or prefinished with a white latex. The ProShield line is offered in a range of the most specified sizes and shapes, including casements, double-hungs, sliders, direct-sets, and patio doors. Appearance options include true-divided-light style muntin grilles. 800/477-6808. Weather Shield Mfg., Inc., Medford, Wis. ■

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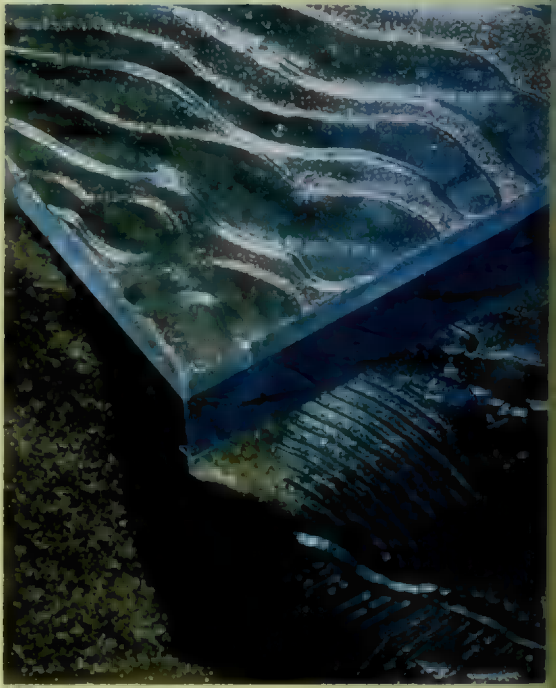
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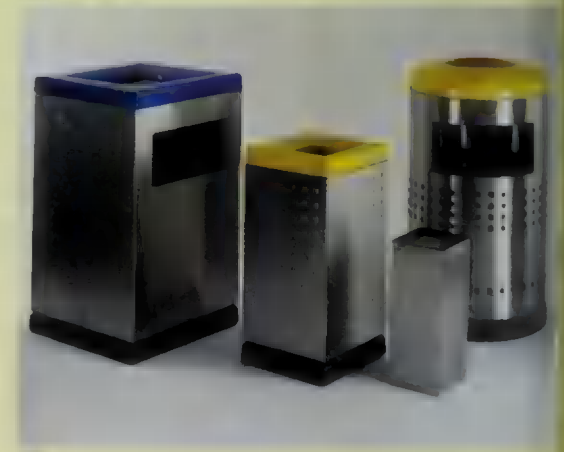
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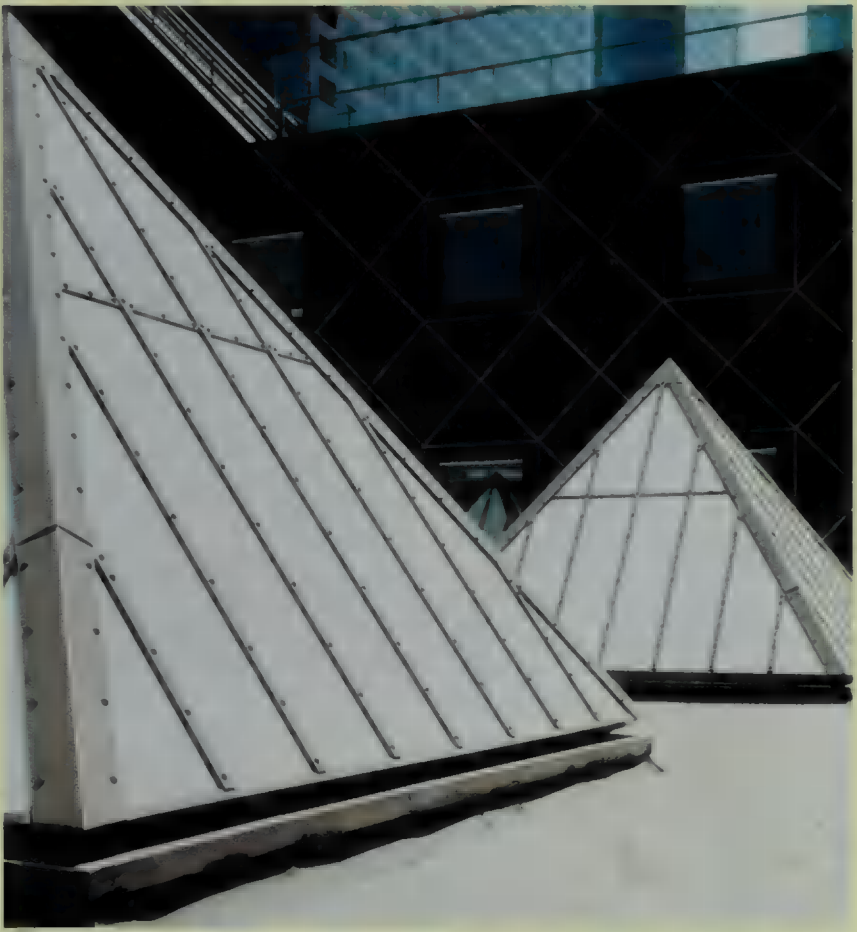

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91a

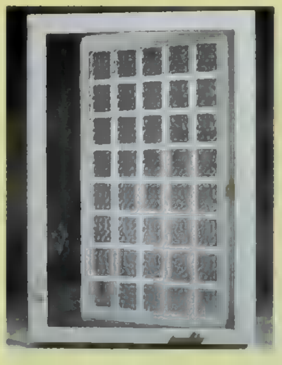
87. *Viracon/CSI*
88. *Skyline Design/NEOCON*
894. *Forms+Surfaces/CSI*
90. *American Seating/*
EOCON
91 *a & b. Haflen/CSI*
92. *Schott/CSI*
93. *Weathershield/AIA*

191b

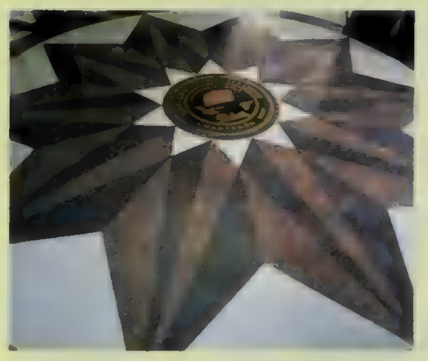
193

Product Briefs

For more information, circle item numbers on Reader Service Card.

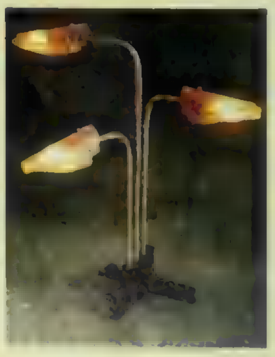


194. Acrylic-block windows
Shipped as an aluminum-framed unit ready for installation, the Hy-Lite window is an alternative to heavier glass-block styles. Tested to ANSI/AAMA 101-88, windows are thermally efficient, and meet Class II and safety-glazing standards. A triangular block shape allows for octagonal and other geometric windows. 800/827-3691. Hy-Lite Block Windows, Beaumont, Calif.

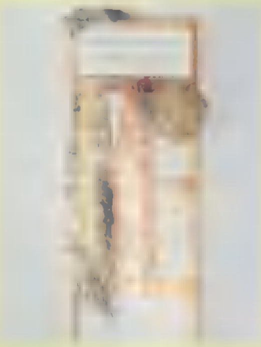


195. Custom-design terrazzo
Precast cementitious terrazzo flooring tiles can now be specified in any custom design, including circles and arcs. CAD-controlled water-jet tools permit a range of unique patterns not possible—or affordable—in this material before. A minus-joint setting method gives the floor a seamless, monolithic appearance. 800/388-8728. Wausau Tile, Inc., Wausau, Wis.

196. Old look, new optics
A new line, the Savannah Lantern ContraCline incorporates high-efficiency optics and light sources in accurately reproduced early 20th-century single- and dual-fixture pole luminaires. Made with aluminum frames and impact-resistant plastic diffusers, the period design meets the most exacting cut-off and spacing programs. Fax 509/921-7539 for specs. Moldcast, San Leandro, Calif.

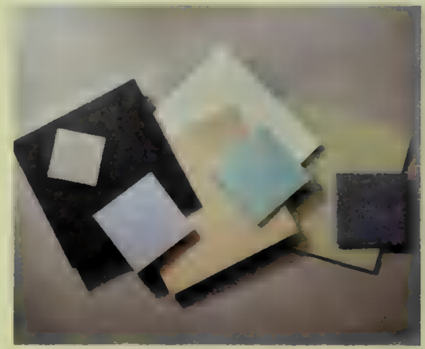


197. Decorative reading lamp
David Bergman took some of the cost out of his handcrafted designs for the newest Fire & Water lighting collection. Made with brass instead of copper tubing, this triple-headed table lamp is priced to retail for about $320. Bi-metallic mesh shades cover candelabra-base incandescents; interlocking base is a granite-look material. 212/475-3106. David Bergman Architects, New York City.

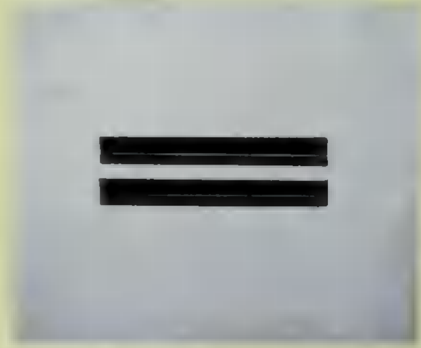


198. Framed radiator
A new style wall-mount heater, the Heritage Omnipanel comes in plug-in and hard-wire electric versions as well as a hydronic model. For use in foyers and other drafty spaces, units will dry raincoats as well as warm bodies—the wood frame carries brass hooks for hanging coats. There are three wood-frame options and a wide choice of panel colors. 800/526-2621. Runtal, Ward Hill, Mass.

199. Docking for laptops
KI offers a new flip-open, power-connect device for many of its worksurface products, including desks, university seating, and seminar and training tables. The unit provides one duplex receptacle, dual AT&T-compatible data ports, and a power cord with a three-prong plug. PowerUp comes in four colors, and folds down flush with the surface when not in use. KI, Green Bay, Wis.



200. Stain-resistant sheet vinyl
Made specifically for the wheeled traffic and non-stain requirements of hospital operating rooms, ICUs, emergency clinics, and laboratories, BioSpec sheet comes in 30 colors, including six low contrast shades that make it easier to spot dropped objects (Where's that surgical sponge?). Seams can be heat- or chemically welded. 609/935-3000. Mannington Commercial, Salem, N.J.



201. Super-discrete slot diffuser
A new frame option for the 1900 linear air diffuser lets the unit fit in a wall or ceiling so that almost every part is concealed by the skim-coat plaster finish. The air-volume adjustment blade is recessed, so only the slot shows. Krueger also offers another choice: diffusers in bright enamel or metal finishes to work with interior designs. 520/295-8500. Krueger, Tucson, Ariz.

202. Acoustic demonstration
The Acoustic DemoDisk shows how different levels of interior treatment impact noise levels and sound quality in architectural spaces. To dramatize the real-world benefits of sound control, the audio disk guides users through 10 types of spaces and three levels—good, better, best—of passive and active treatment. TechLine: 800/448-1405. Armstrong World Industries, Inc., Lancaster, Pa.

203. One-size-fits-all primer
Intended to be an all-purpose interior and exterior primer coat for both professional and homeowner use, new all-acrylic Fresh Start covers most substrates, and acts as a stain suppressor over smoke, crayon, graffiti, and water marks. Suitable for drywall, ceiling tiles, metal, wood, even ceramic or laminate surfaces. 800/344-0400, x2571. Benjamin Moore & Co., Montvale, N.J. ■

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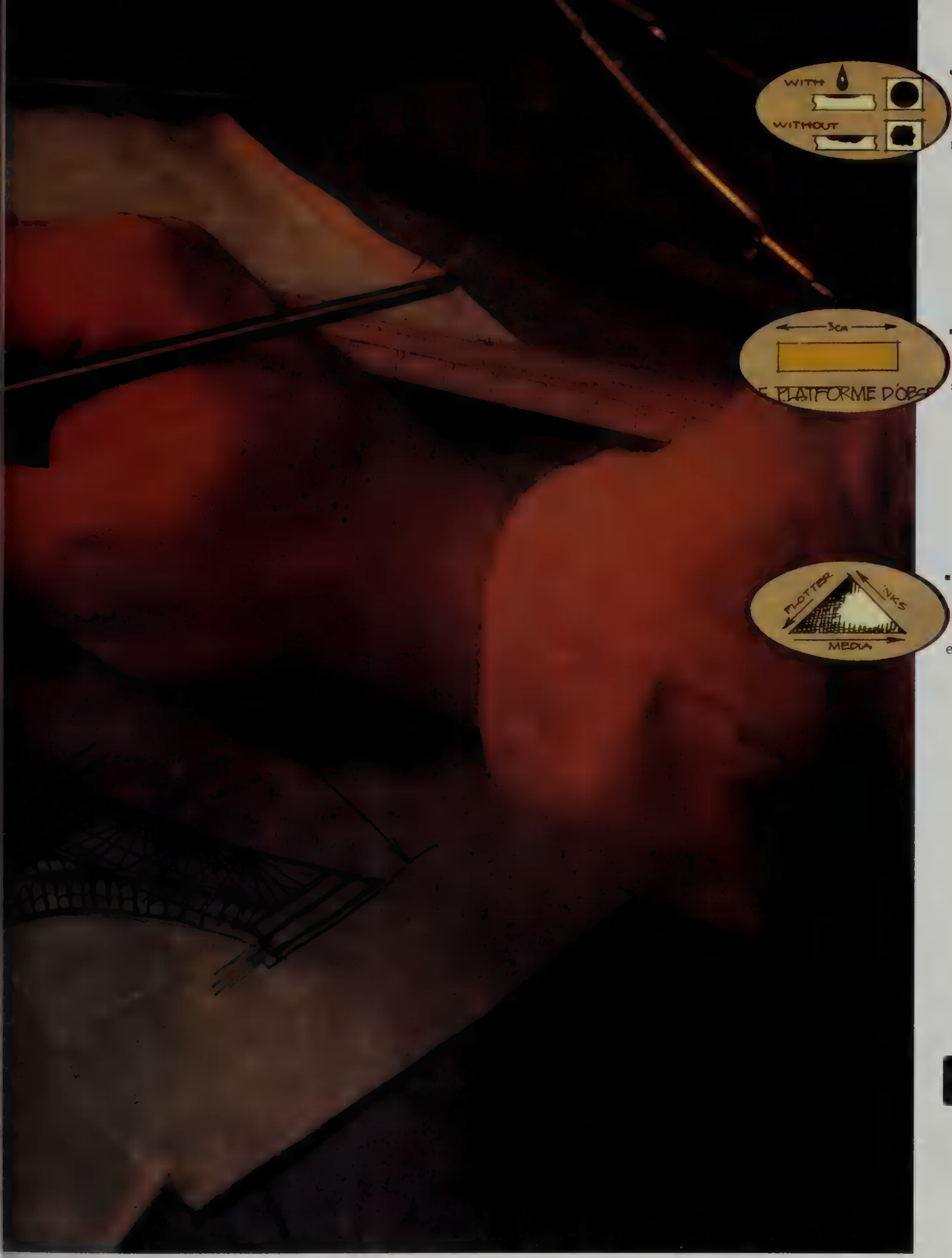

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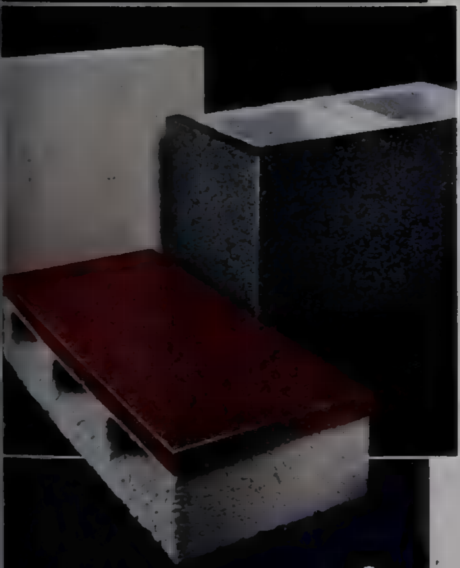

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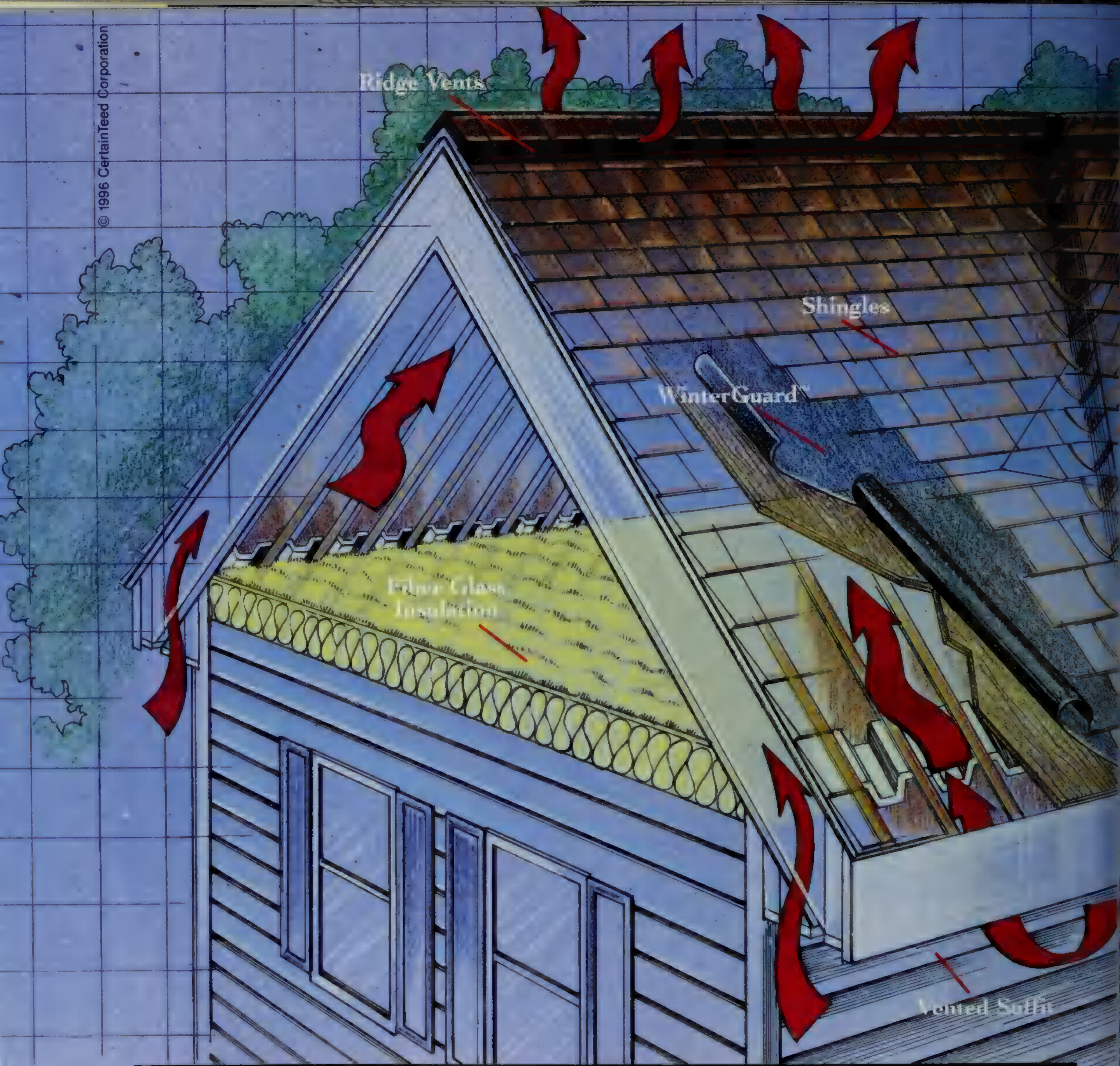

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Circle No. 87

This month we feature, among other projects, three American museums as different from one another in intent and realization as one could possibly imagine. The Museum of Contemporary Art in Chicago (pages 80-87), designed by Berlin-based architect Josef Paul Kleihues is, as writer Cheryl Kent points out, a Classically planned building in Modernist dress. It is also the latest chapter in the city's ongoing obsession with the architectural rigor of another visiting German, Mies van der Rohe, who came to Chicago in the late 1930s and practiced there until his death in 1969. As an outsider, Kleihues was in a privileged position to summarize the city's building tradition and, presented with one of the remaining magnificent downtown sites—bridging the density of North Michigan Avenue with the more bucolic landscape of a park that extends to Lake Michigan—he was provided a mighty platform for his vision. In Moshe Safdie's new home for the Skirball Cultural Center in Los Angeles' Santa Monica Mountains (pages 94-101), he presents a different experience to museum-goers. While the plan of an institution devoted to displaying Jewish artifacts and traditions is composed as a meandering journey through a variety of indoor and outdoor spaces, the overall effect is of miniature city rather than, as in Chicago, precious object. Venturi, Scott Brown and Associates' renovation and expansion of the Museum of Contemporary Art, San Diego (pages 88-93), takes another approach. Like Chicago, it has two faces—one purposely respectful to its historic neighborhood of La Jolla, and another more exuberant that opens to the Pacific Ocean. Incorporating an Irving Gill house of 1916, the museum's split personality is furthered by its meld of old and new. Together, the three projects reveal that the essential challenge of museum design is not to stage a competition between art and architecture, but to reveal how an institution sees itself. *Karen D. Stein*

Manufacturers' Sources listed on page 120

Kleihues Defies Skepticism to Create Chicago Landmark

One of the most debated buildings of the year, the new Museum of Contemporary Art in Chicago represents German architect Josef P. Kleihues's American debut. Is it too Classical or too reserved? Or does it update the city's rich architectural heritage?

By Cheryl Kent

It took an outsider to see what Chicago has to build on. After many years of buildings that denied the city's powerful architectural traditions, Berlin-based architect Josef Paul Kleihues has designed the handsome new Museum of Contemporary Art (MCA), using the past as the foundation for an inspired essay in Modernist design. Kleihues has borrowed Classical forms and proportions to carve out a contemporary building. Deep into the 1990s, Kleihues's MCA seems to summarize a composure and restraint that has blessedly come to us after an era in which the over-the-top, program-be-damned hedonism of museums like Peter Eisenman's Wexner Center and Frank Gehry's Vitra Museum has been celebrated.

This is not to say the MCA is a 1990s reprise of a 1950s building or, for that matter, something much older. There is nothing *retardataire* about the building, although the entire form of the museum is a reinterpretation of Classical elements: there is the building's strict symmetry, its two pedestals for which sculptures are being commissioned at either side of the entry, a forecourt, and a cornice, if a rather weak one. The use of materials alone is enough to distinguish the building, marking it as singular to its age. Cast-aluminum square plates are affixed to the building with gleaming polished bolts and serve as cladding for all but the ground level, which is sheathed in finely finished Indiana limestone. The detailing is exquisite, the geometry precise. And the cast aluminum is a great relief from the thin-veneer polished granite that has been pasted like so much wallpaper up and down this city's once-beautiful North Michigan Avenue, diminishing a gorgeous stone to the gaudy and commonplace.

Formidable precedents, however, remain behind the surface and, indeed, Kleihues cites the Acropolis and Karl Friedrich Schinkel's Schauspielhaus as the MCA's antecedents. Just as important is the work of another German outsider, Mies van der Rohe, who built on Chicago's legacy of Modernism and took it into the post-war era.

The museum's location is superb. It stands one block east of the retail hustle along North Michigan Avenue, on a site donated by the state of Illinois where an armory building formerly stood. (In its earlier incarnation, the museum operated from a renovated bakery at a less prominent address on Ontario Street where it was founded in 1967.) There is a pretty, recently landscaped public park to the west and, on the opposite side of the museum, another park (miserable looking and neglected) extends east all the way to Lake Michigan. Thus the museum is a freestanding structure, visible to everyone in the vicinity and possessor of some of the most beautiful views anywhere in Chicago. As North Michigan Avenue has pulled retail north from the older urban center about a mile away, the MCA marks one of the first important new institutional buildings to follow this northward drift.

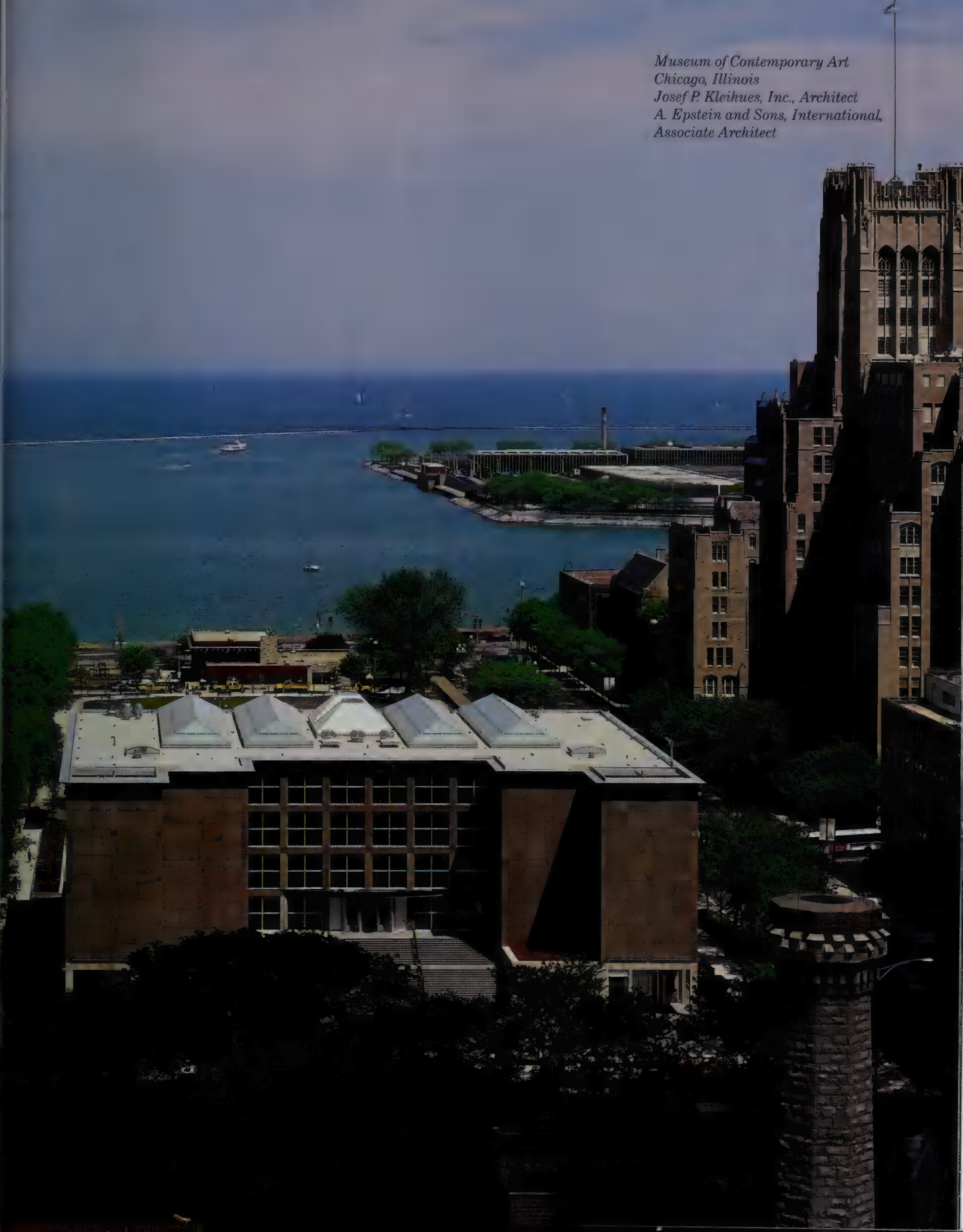
The benefits of the MCA siting are more immediately apparent than the drawbacks. But the site offers no forgiving utilitarian elevation where loading docks, parking, and services can be secreted. These had to be incorporated in a genteel fashion on the north and south sides of the building (the dock drive cuts through the width of the building). Some elevations work better than others. The south side is far less successful than the north, for example, as much because of the security entries and the unhappy asymmetrical fenestration on a building driven by geometry. This will improve when the trees fill out. Medieval-looking black gates lead to the dock and a parking area beneath the stepped sculpture garden at the back of the museum.

The main entry to the MCA is up a grand flight of stairs, which has proven controversial. At the top of the stairs, the view to the lake through the building and across the sculpture garden opens and, turning back, one can see the city laid out to the west. The stairs, which some have criticized as too imposing and others as too Classical, are, to my mind, absolutely appropriate to such an institution, since they work both programmatically and esthetically. They stand in mute reply to the Museum of Modern Art (MoMA) in New York City. Ever since MoMA was built in the 1930s, it has been common to express art's accessibility with street-level entryways. Without suggesting that art should be deified, Kleihues makes it plain that contemporary art deserves to be elevated along with the old masters. Now that the museum has opened, the stairs are animated by people sitting on them and musicians playing in front.

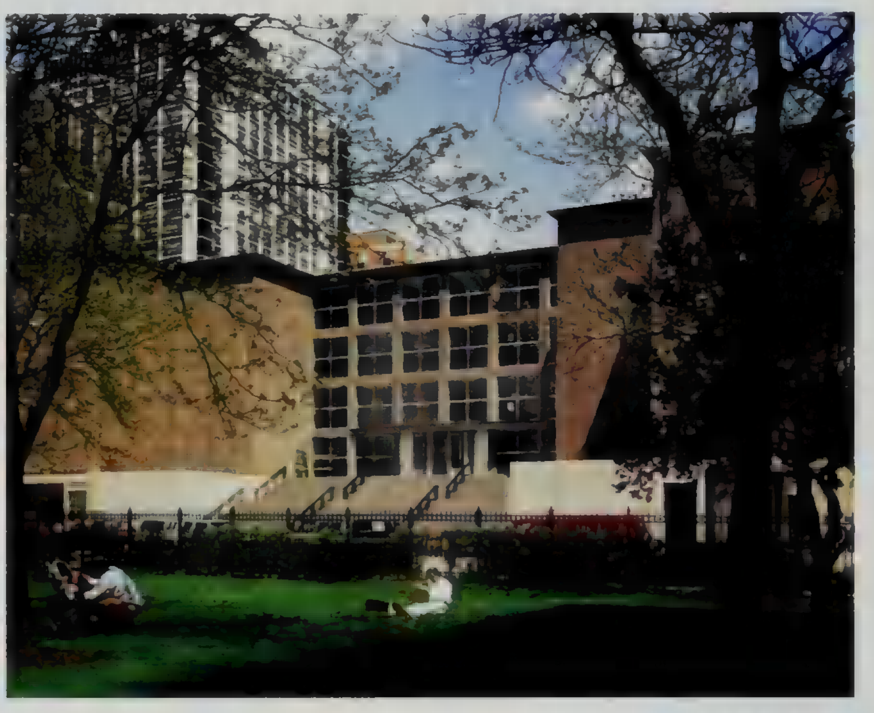
Kleihues's approach is very different from Mario Botta's in the San Francisco Museum of Modern Art (SFMOMA) [RECORD, November 1994, pages 74-82], where the entry level is occupied by a special-events room, auditorium, bookstore, and café. To get to the art at SFMOMA, you must take an interior stair, albeit a dramatic one. The unspoken implication is that fund-raising and money-making come first and art second. Indeed, it is instructive to compare the MCA with SFMOMA. Both have similar programs, are designed by foreign architects who had never worked in the U.S., and are important cultural additions to major cities. While the MCA captures the essence of Chicago's architectural spirit, SFMOMA has been criticized as being a foreign object aloof from its setting and local building traditions.

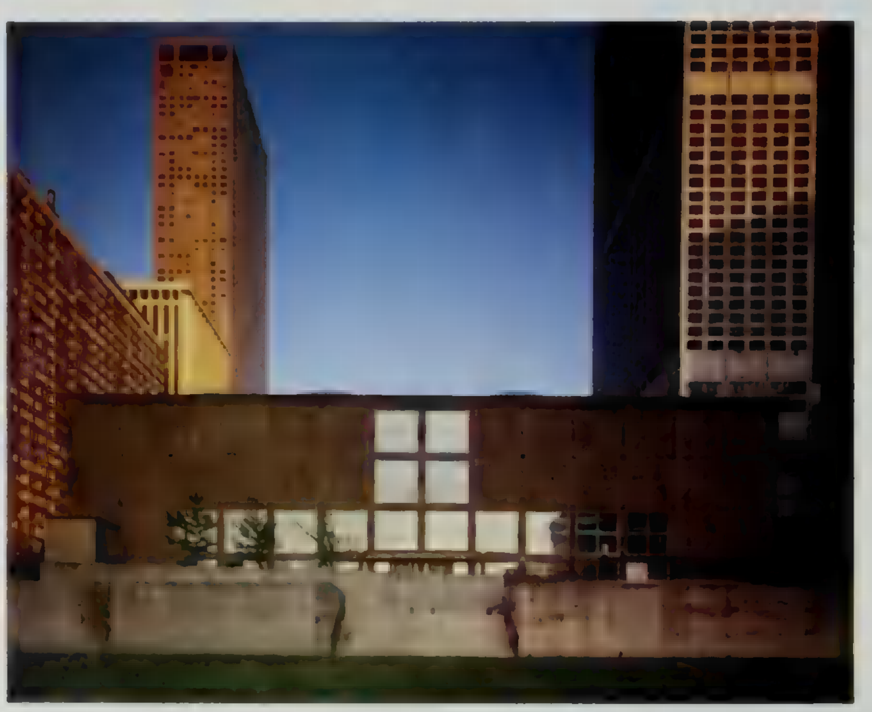
Planning is plainly one of Kleihues's fortes. Throughout, the MCA has an enviable compact quality and completeness of thought. No longer simple art warehouses with dignified facades as they were early in this century, museums—contemporary ones in particular—must now accommodate works of tremendous scale, as well as temporary and traveling exhibits that often compete with the usual circulation patterns. Room must be found for video, dance, and other performances—all accepted contemporary art forms—together with the party rooms for fund-raising. *(Text continued on page 86)*

Cheryl Kent is a former correspondent with Progressive Architecture *and writes about design from Chicago.*



Museum of Contemporary Art
Chicago, Illinois
Josef P. Kleihues, Inc., Architect
A. Epstein and Sons, International,
Associate Architect

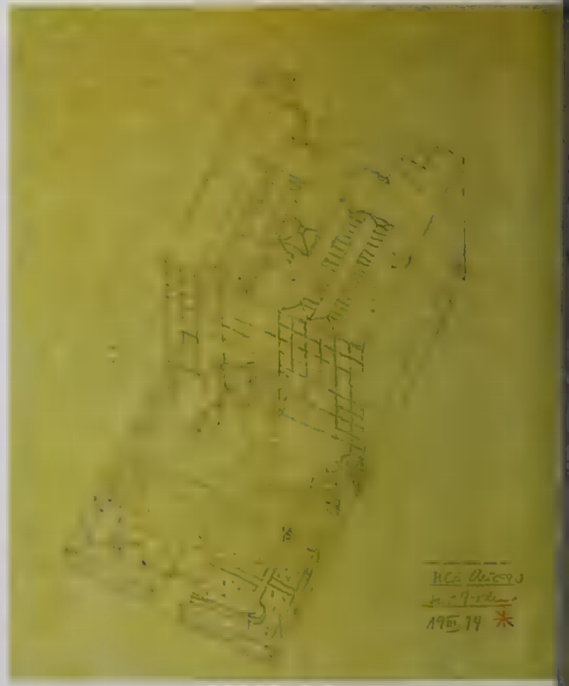




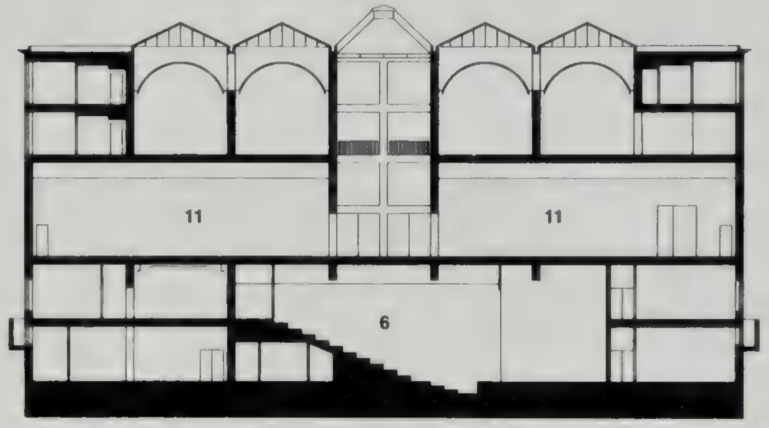
The Museum of Contemporary Art has two main public faces: the west-facing main entrance, a block from the central Chicago artery of Michigan Avenue (top left), and the east-facing sculpture terrace overlooking Lake Michigan (middle and bottom left and opposite). The building's footprint and the sculpture garden are both 184-ft squares. Kleihues based his elevations on the Classical tripartite configuration of base, wall, and cornice. In the front, a grand staircase, set 26 feet back from the structure's front edge, establishes a podium for the second-floor lobby and galleries and offices located above. The 16-ft-high base is clad in 2-ft-square Indiana limestone panels meant to echo the color of the nearby historic Water Tower. The panels are 4 inches thick and are attached by countersunk screws, centered in each slab. Kleihues says the fastners are an allusion to Otto Wagner's 1906 Postsparkasse in Vienna.

For the middle zone of the wall, the architect initially considered using one-inch-thick lead sheets, but the material's pliability and toxicity precluded its use. Instead, panels of cast-aluminum, intended to patina with age and the effects of Chicago's damp climate, were chosen. Manufactured in El Paso, Texas, the panels were sandblasted with fine iron filings that left a residue in the softer aluminum surface. Four countersunk screws, placed in the corners, are used to attach the panels. Fixed, 11-ft-square windows, custom-designed for the project, have anodized aluminum frames.

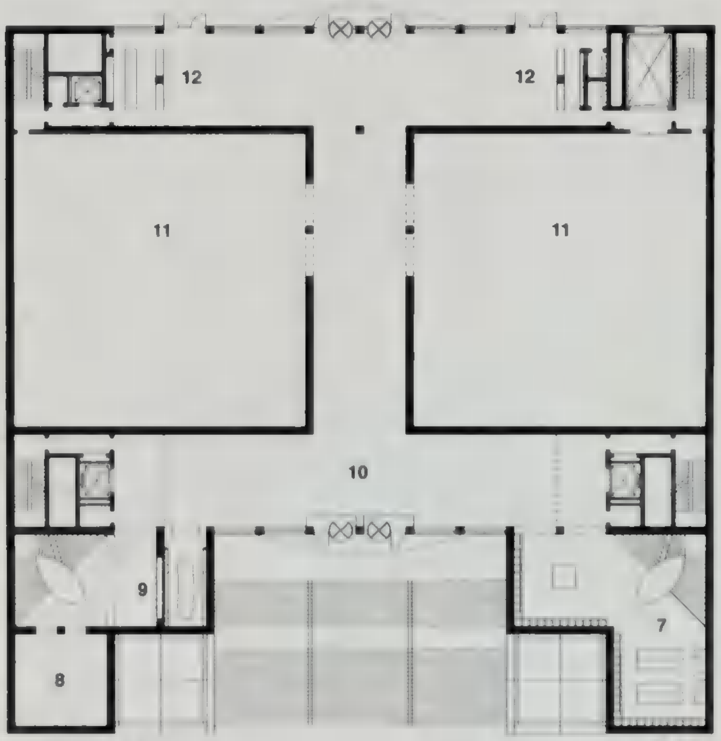
A protruding cornice creates a deep shadow on the building, giving a definite cap to the structure. A sketch by Kleihues shows his early vision of the complex (below).



S UM OF CONTEMPORARY ART

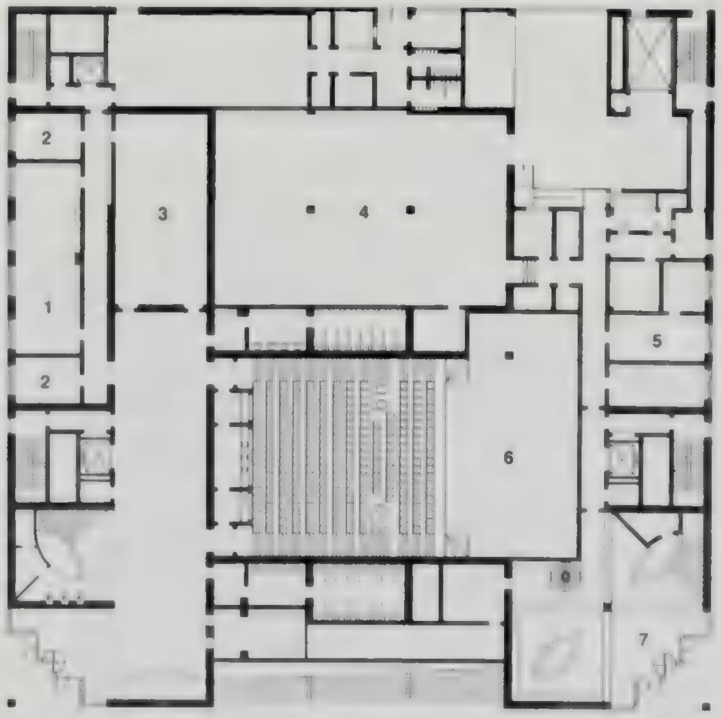


NORTH - SOUTH SECTION



SECOND FLOOR

50 FT
15 M



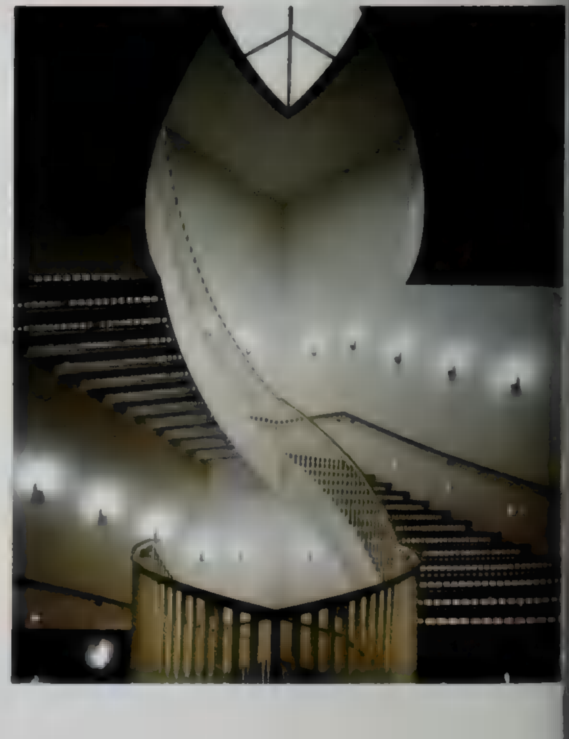
FIRST FLOOR

1. *Classroom*
2. *Conference*
3. *Board room*
4. *Art storage*
5. *Office*
6. *Theater*
7. *Museum store*
8. *Orientation*
9. *Information*
10. *Great hall*
11. *Gallery*
12. *Café*

Kleihues likens his organization of the museum's interior spaces to that of Louis Sullivan's Carson, Pirie, Scott store in its placement of various functions within a simple geometric plan. The MCA, says Kleihues, "is also a basic shape, a square in this case, with seven bays on each side. I used the corners to plug in almost everything we needed for vertical" circulation, then centered the main stair on the front of the building and established a strong east-west axis through the building (plans left). Ship-shaped interior stairs (below) occupy the northwest and southwest corners.

While the ground floor contains the auditorium, classrooms, and the first level of the gift shop, most visitors walk up the 32 steps of the grand stair and enter the museum on the second floor where they find the main lobby, dining, and access to the outdoor sculpture garden. Two large galleries, each with 5,800 sq ft of space, house temporary exhibitions on this floor. The third floor features a gallery for video and media arts. The museum's permanent collection and exhibitions of works on paper are in galleries on the fourth floor. The top-lit, vaulted galleries (bottom, opposite) provide 16,000 sq ft of exhibition space.

The interplay between transparency and containment is a theme that runs through the museum's interiors and starts as soon as visitors climb the main stair and get views through the building to Lake Michigan. "But as soon as you enter the exhibition space, you are separated," explains Kleihues, "you are in some way isolated with the art." A foyer (top opposite) outside the exhibition areas offers views of the city.



Continued from page 80

Little space is wasted in the MCA. If the need for the 300-seat theater and video galleries was obvious, it is delightful to find them incorporated rather than added on, as is the case with older museums trying to catch up. The theater is at grade, as is the handicapped-access entry, the group-tour entry, classrooms, and, on the opposite side of the building, the gift shop. Tucked into the two west corners are beautifully detailed staircases which recall the Guggenheim and which wind down to fish pools at the first level.

Aside from its logic and simplicity, the plan's beauty lies in its separation of art from the attendant services of tours, children's amusements, and retail. On entering the museum at the second level, the visitor encounters the heart of the institution—the art. The foyer is a grand four-story atrium filled with daylight. Beyond, on either side of the hall, two large galleries—each two stories high—are designed for traveling or temporary exhibits. These are illuminated by light fixtures, but convincingly simulate daylight. Four double-story vaulted galleries on levels four and five are home to the permanent collection. There, a complex computerized system admits filtered daylight, keeping the level constant by compensating with light from fixtures as the sun passes overhead. The lighting is changed to correspond to the seasons and can be fine-tuned when necessary. I found it to be quite good on the several days I visited.

Problems occur, though, in the sculpture garden, where Kleihues tries to break his own geometry but where the curves and angles he introduces are jarring and the free feeling he wants to inspire feels forced. Look at Mies's Barcelona Pavilion—deliberate asymmetry can accomplish more with less. Kleihues's garden walls, together with the low planters running along the north and south sides of the museum, are made of cast concrete. The craftsmanship is poor; cracking and patching is evident already. The planters are closer to pedestrians than any other part of the museum and give a poor impression. They should have been limestone. As it is, they give off a budget-cutting odor. And for all his strengths, Kleihues is not a landscape architect. The variety of plantings is not great enough nor the arrangement imaginative enough. The masses of rhododendron, which have a short blossoming season here, merely put one in mind of a spring photography session.

In addition to criticizing the design itself, some people in Chicago grumbled that an outsider won the commission for the MCA. Yet no architect could have dreamed of a better, more fair process. No architect was asked to design something for nothing. Rather, a selection committee, which included critic Ada Louise Huxtable, Pritzker Prize selection-committee chairman Bill Lacy, and Gene Summers, former architecture dean at the Illinois Institute of Technology, traveled around the world to interview the six finalists and see their work. In addition to Kleihues, the finalists were: the Argentine-American Emilio Ambasz, Tadao Ando and Fumihiko Maki from Japan, Christian de Portzamparc from France, and Los Angeles-based Morphosis.

In the end, Kleihues has shown he understands Chicago. "In Chicago, it is not necessary that buildings jump and dance. There is no need for any decoration or any loud design." When he says this, Kleihues is referring in part to the art and letting it come forward while the architecture stands as a backdrop. But he is also referring to Chicago's architectural reputation, one of the most distinguished in the nation. Perhaps it took someone like him—a foreigner, an outsider—to come look at this city and see what in it deserved to be recalled and what traditions were worth developing. He has done it—recalled the great Modernist tradition without copying it. He has given this city a proud and lovely building that will age with dignity. ■

"Simplicity, openness, quiet," are the words Kleihues uses to describe his approach to the museum's interiors. "I would never build a museum that would interfere with the visitor's ability to concentrate on art." This attitude is manifested in spaces such as the museum's central axis where height and light are the key elements in creating the setting for pieces such as James Lee Byars's "Golden Sphere" (opposite).

Eschewing color and architectural high jinks, the designers tried to eliminate as many distractions as possible. "As a visitor, you should come to a dialog with the art without being irritated by people running up a ramp, or going down stairs, or riding a transparent elevator—as some architects like to do," states Kleihues. To reinforce this attitude, the architects limited themselves to a simple palette of materials, including plaster-coated drywall, white-oak paneling, impala black granite for lobby flooring, and carpeting, concrete, or white oak for gallery floors.

With 147,000 sq ft, the new MCA has almost seven times the total space as its old facility on Ontario Street. The new building also allows the museum to present temporary exhibits while at the same time displaying portions of its permanent collection of 7,000 objects.

Credits
Museum of Contemporary Art
Chicago
Architect: *Josef P. Kleihues, Inc.—Josef P. Kleihues, architect; Johannes Rath, project manager; Greg Sherlock, Mark Bastian, John DeSalvo, Pablo Diaz, Arden Freeman, Haukur Hardason, Richard McLoughlin, project team*
Associate Architect/Engineer: *A. Epstein and Sons International, Inc.—Michael Damore, executive vice president; Mark Streetz, project manager*
Consultants: *Ove Arup & Partners (design engineer); Claude R. Engle (lighting); Steven Keller and Associates and Schiff & Associates (security); Daniel Weinbach & Partners (landscape)*
General Contractor: *W.E. O'Neil Construction Company*

Irving Gill Reconsidered

Museum of Contemporary Art,
San Diego
La Jolla, California
Venturi, Scott Brown & Associates,
Architect

Ten years after the project began, Venturi, Scott Brown & Associates has brought new vigor to a historic building, remaking Irving Gill's 1916 Scripps House into a world-class home for art

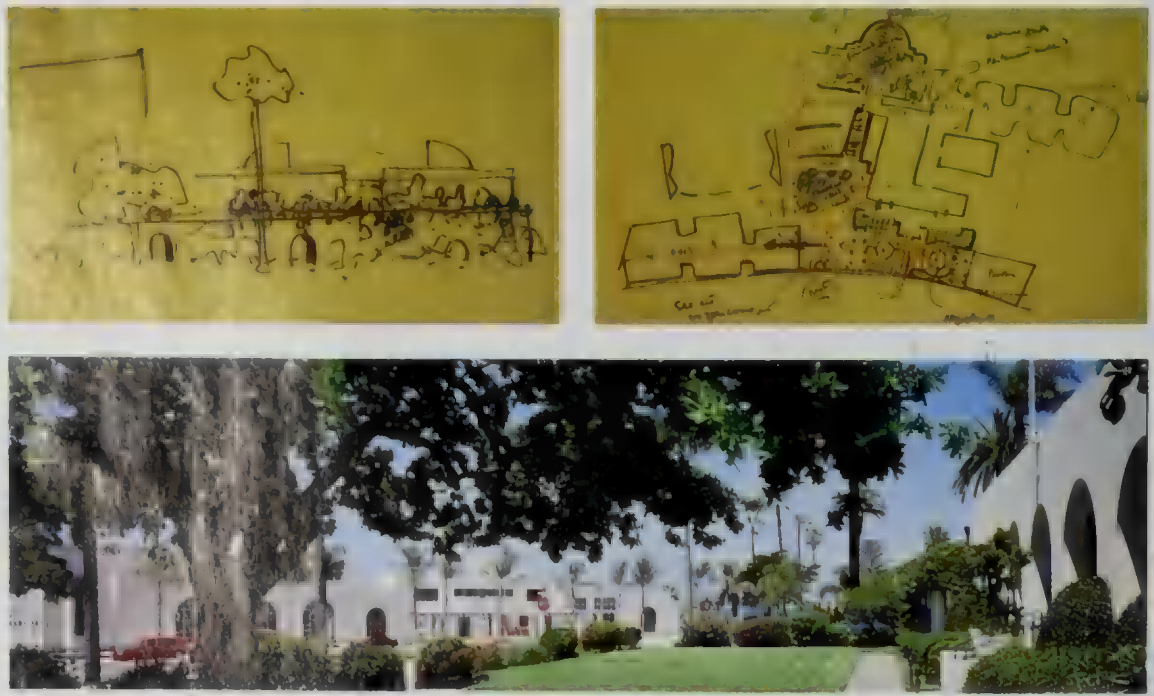
San Diego's Museum of Contemporary Art (MCA), in La Jolla, California, challenges conventional curatorial notions: great works of contemporary art need not occupy an institutional "neutral white cube," as museum director Hugh Davies calls it, nor be isolated from nature. This 55-year-old institution presents itself with such modesty of scale and dignity of demeanor that even after its renovation and expansion a visitor might almost overlook its daring. Almost, that is—until having passed through the residential enclave it fronts along Prospect Street you reach a modest-size west-facing gallery or, perhaps for the lucky few, arrive at Davies' office, both with panoramic Pacific Ocean views.

Certainly the intimacy of this museum is aided by the fact that the original building, designed by Irving Gill in 1916, began life as a home for Ellen Browning Scripps, a maverick patron of progressive causes in the burgeoning seaside community. In keeping with her civic-mindedness, Scripps' estate in 1940, eight years after her death, lent her vacant house to a group of local artists for the display of their work. The debut show proved so successful that a non-profit art center coalesced, purchasing the property.

As a museum, the Gill building underwent several alterations, including a 1950 transformation of downstairs living rooms into galleries and second-floor bedrooms into offices. In 1959 another renovation cloaked the Gill facade. Both projects were by San Diego architect Robert Mosher of Mosher & Drew. By the time Davies took over as head of the museum in 1983, the institution was in need of additional space to exhibit its growing collection. An extensive architect search led to the 1986 selection of Venturi, Scott Brown & Associates (VSBA). VSBA was chosen, reports Davies, partly for its facility with history, and partly for principal-in-charge Robert Venturi's longstanding admiration of Gill, for whom he coined the term "enigmat" for his enigmatic blend of Modernism, Arts and Craft, and Spanish Revival. (Not surprisingly, VSBA is known as an equally adept style mixer.) Almost simultaneously, VSBA was awarded the coveted and totally absorbing commission to design the new Sainsbury Wing of London's National Gallery of Art [RECORD, October 1991, pages 72-79] and so offered its California client the option of reconsidering its selection. MCA instead chose to wait, even agreeing to spend more on VSBA's fee than if it had proceeded with a less internationally prominent choice, convinced of the selection's appropriateness. In fact, over the years between design and the museum's reopening, patience prevailed on both sides, as an activist community group sought to block what they saw as museum "imperialism" and as the difficulties of fund-raising during a recession curtailed the building program.

After 10 years, the result is a complex that puts Gill in a new context. While VSBA recaptured the obscured Gill facade, the architect did not try to turn back time. The former Scripps house, while still the centerpiece, is now an element in a larger composition that seems both derived from it, and distinct, thanks to exaggerated shifts of scale between "old" and new: the arched windows of the VSBA wings are Gill-like in form yet are filled with a thickly-mullioned glass; the chunky columns of the pergola are fattened versions of those at Gill's Woman's Club across the street.

Although the Scripps House's front was imprinted in many an architectural historian's mind, its lesser-known back has been transformed by VSBA's windows and a terraced staircase leading to the garden and overlooking the beach. Made into a giant frame on the landscape, the changed MCA sends a message: the contemplation of art is, like a window on the ocean, a view to the infinite. *Karen D. Stein*

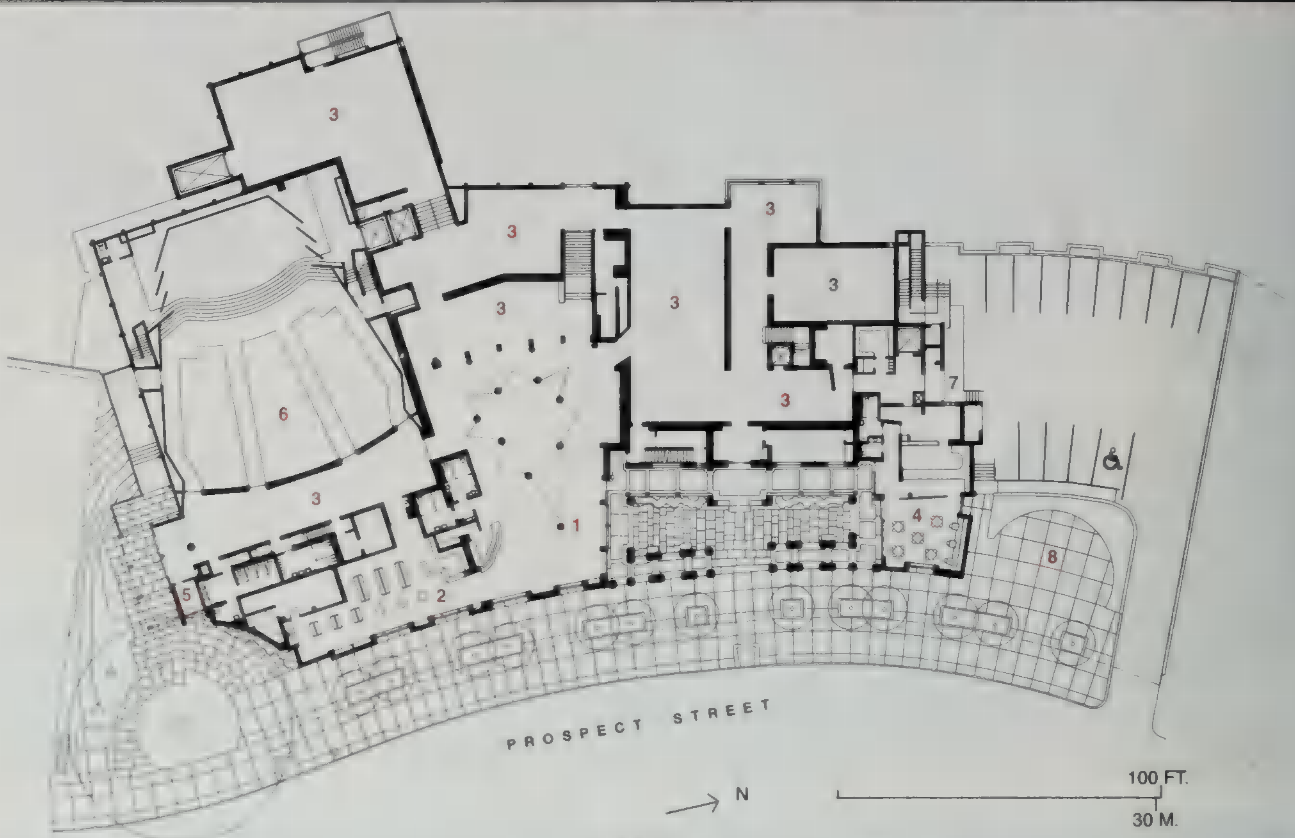


The renovated and expanded Museum of Contemporary Art, San Diego, sits in a precinct of four Irving Gill buildings (below) that includes his Woman's Club across the street. Robert Venturi's late 1980's sketches show VSBA's response to the 1916 structure.

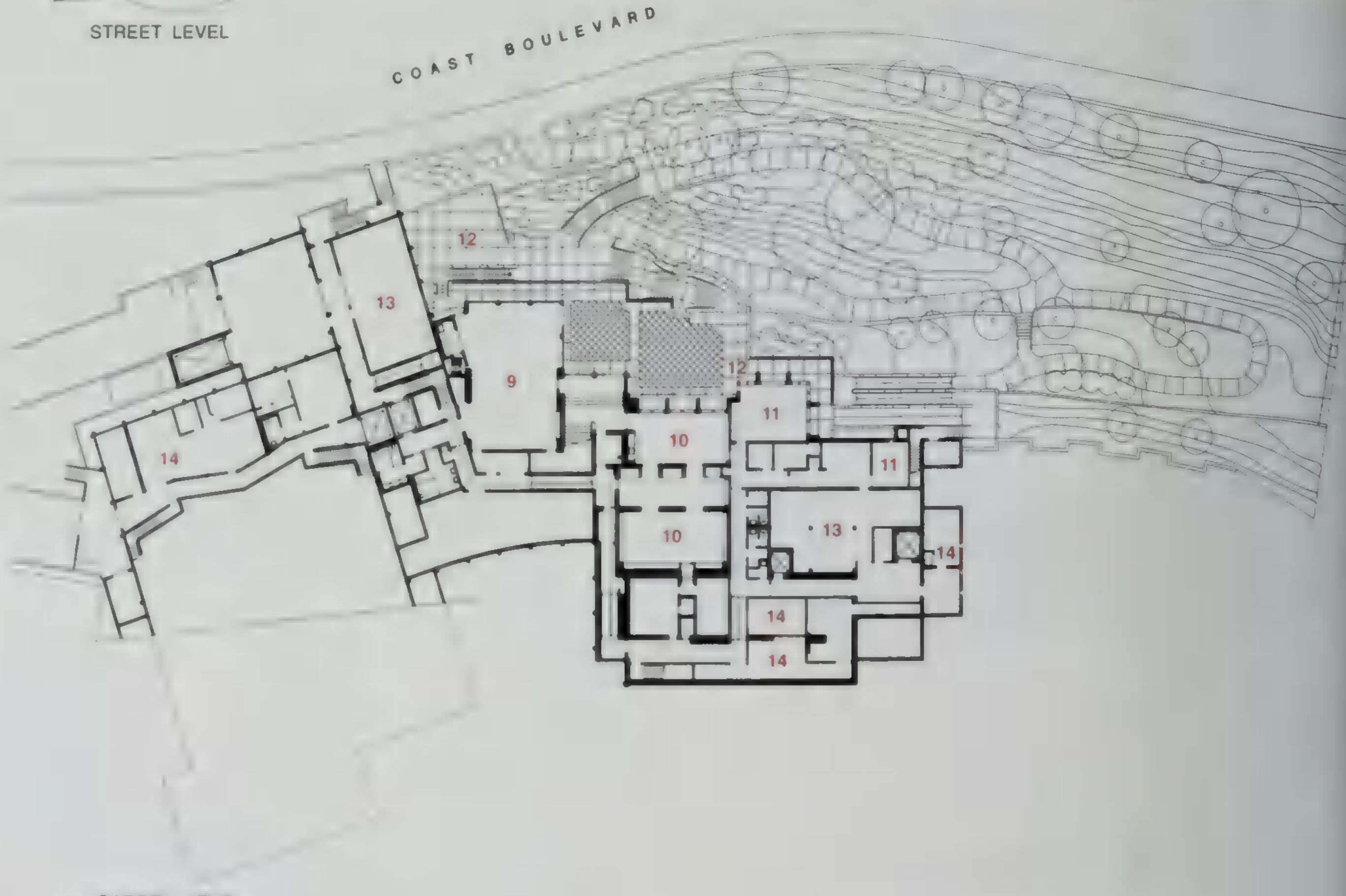
© *Timothy Hursley photos*

AUDITORIUM
MUSEUM OF
CONTEMPORARY ART

1. *Entrance*
2. *Bookstore*
3. *Gallery*
4. *Cafe*
5. *Box office*
6. *Auditorium*
7. *Loading*
8. *Sculpture court*
9. *Lecture room*
10. *Library*
11. *Office*
12. *Terrace*
13. *Storage*
14. *Mechanical*



STREET LEVEL



GARDEN LEVEL

Up Close

Challenges: Re-establish the museum's prominence within La Jolla, California's Irving Gill precinct. Recapture the 1916 Gill facade, formerly the Ellen Browning Scripps House, within an expanded, reinvigorated whole.

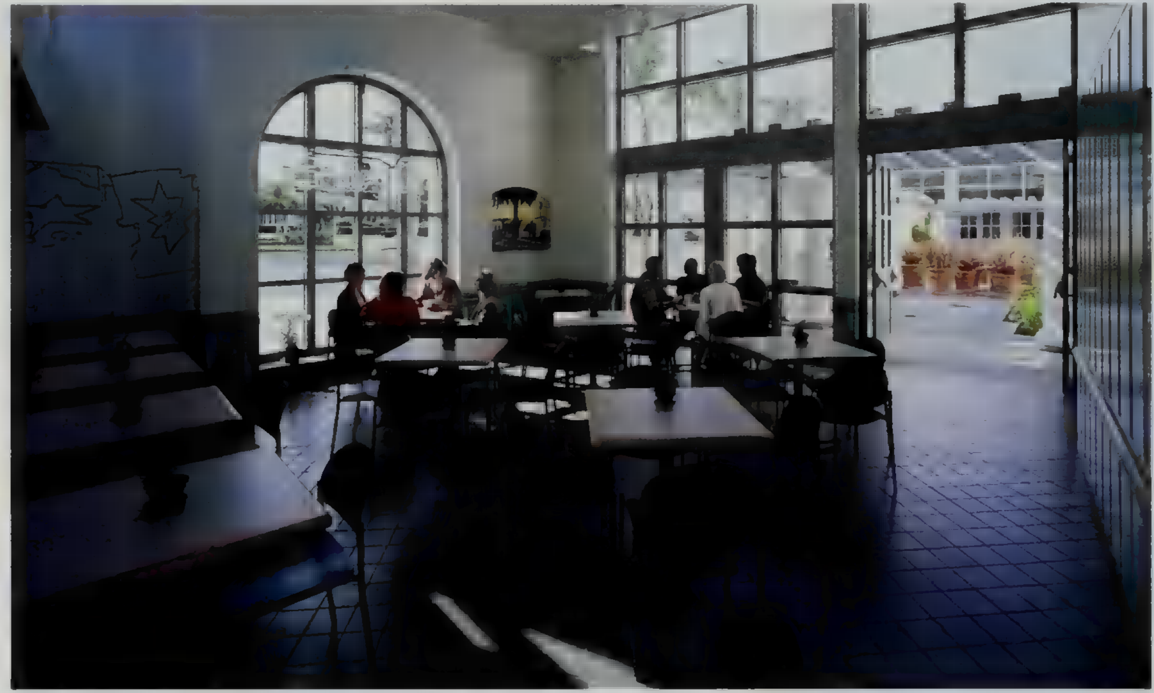
Program: Provide additional exhibition, art-storage, library, and bookstore space. Add a cafe, update the uses and facilities of the auditorium, and create a grand, central space for public functions.

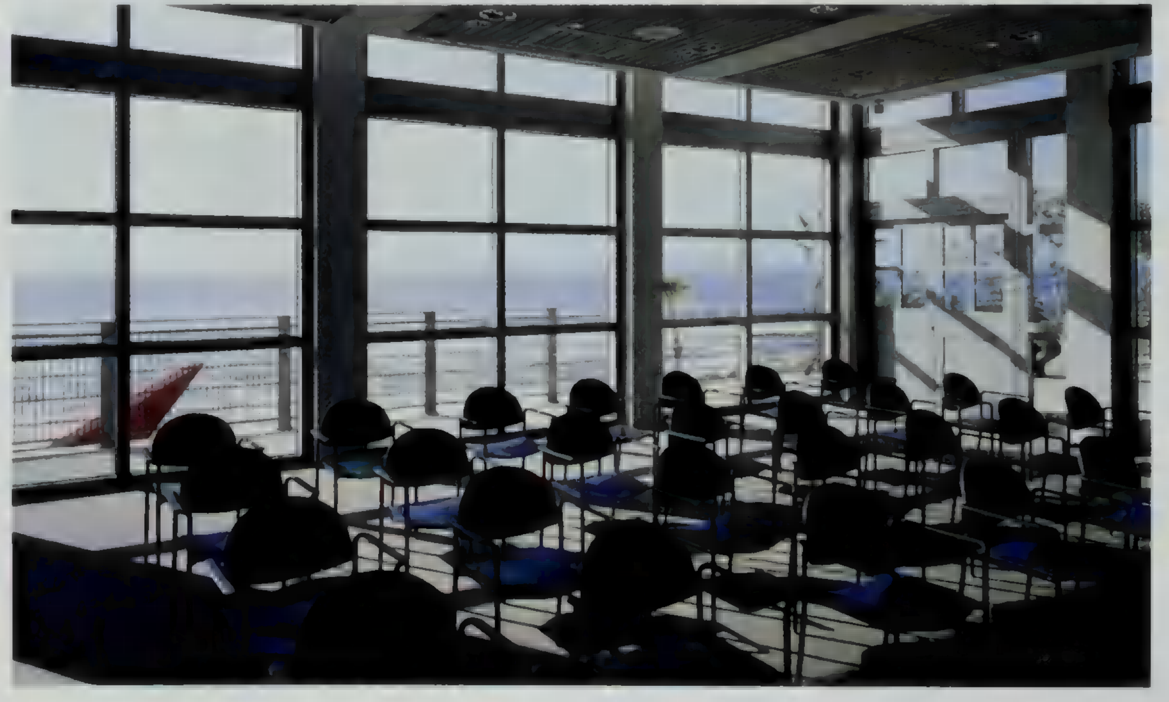
Solution: Playing up the contrast of the site's front and back, the renovated Museum of Contemporary Art is purposely two-faced. Along Prospect Street, where it faces other Gill buildings, a "restored" original facade is flanked by new arched wings of the cafe to the north and a shop and auditorium to the south. In the back, where Gill-like austerity gives way to dramatic Pacific Ocean views, a VSBA-designed stair steps down the bluff toward Coast Boulevard. Total cost: $9.25 million. Plans for a northwest wing of galleries await funding.

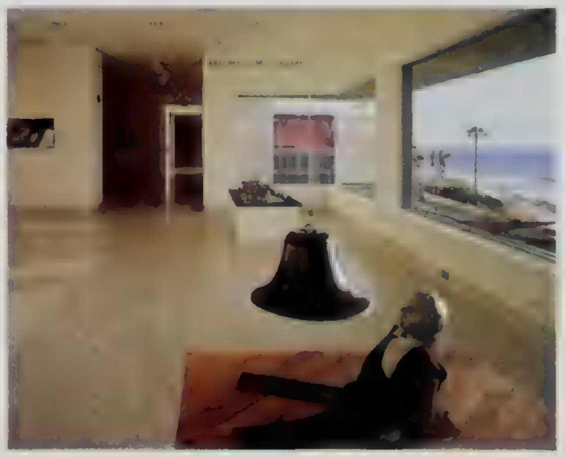
Artist Ed Ruscha's acrylic on PVC-coated fabric "Brave Men Run in My Family" echoes the the drama of the ocean-front site (opposite). A new terraced path allows views back to the building.

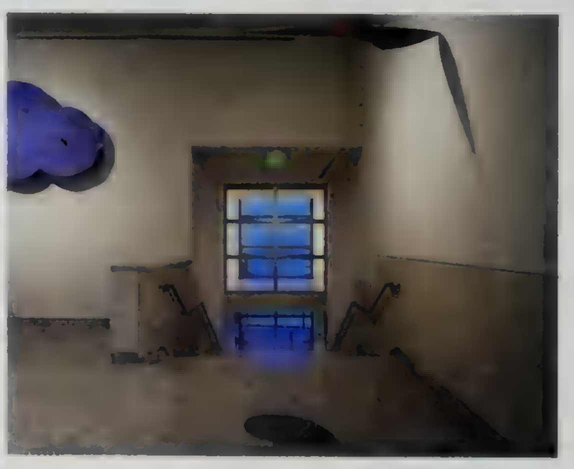
IN MY FAMILY

N IN MY FAMILY







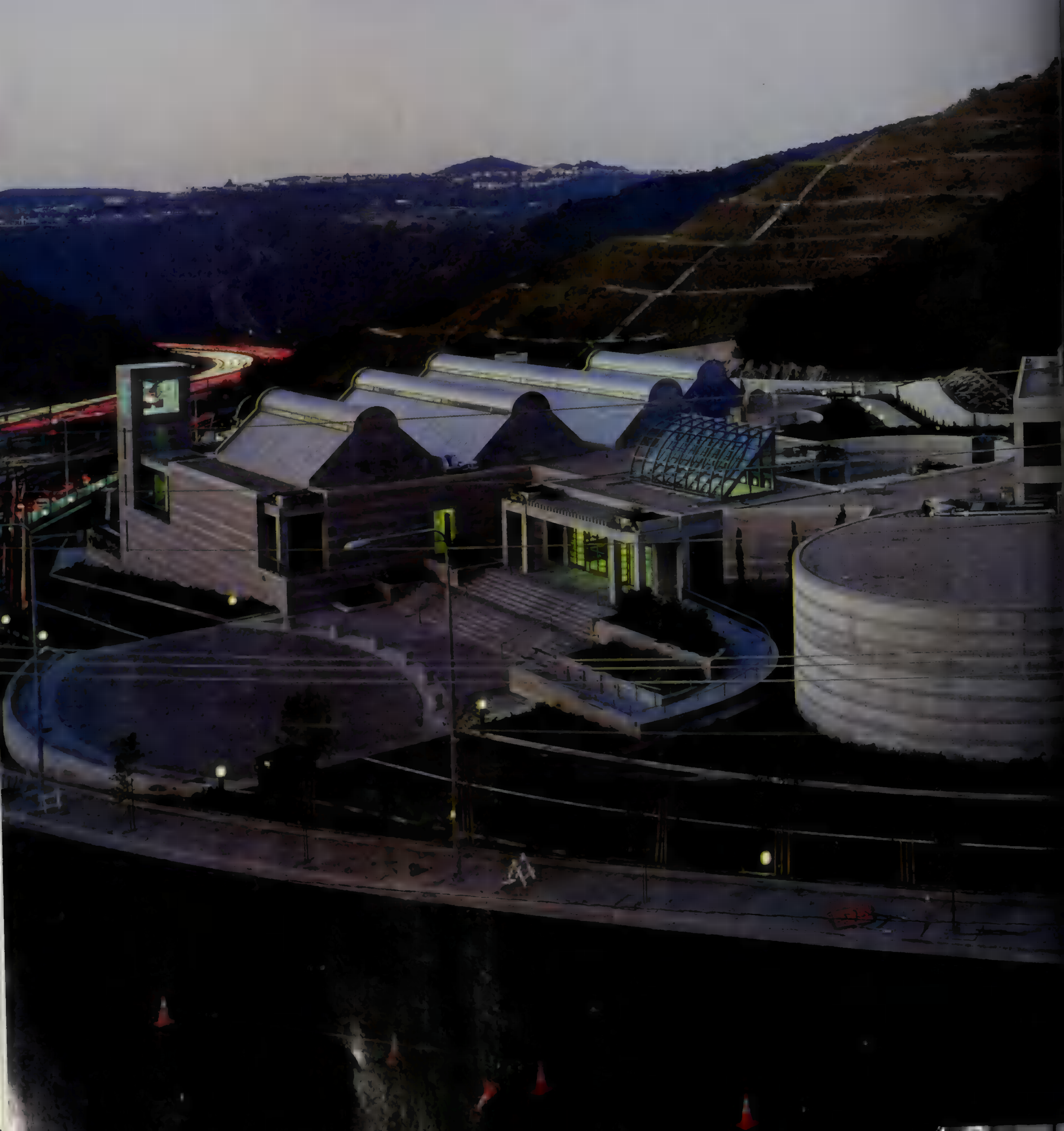


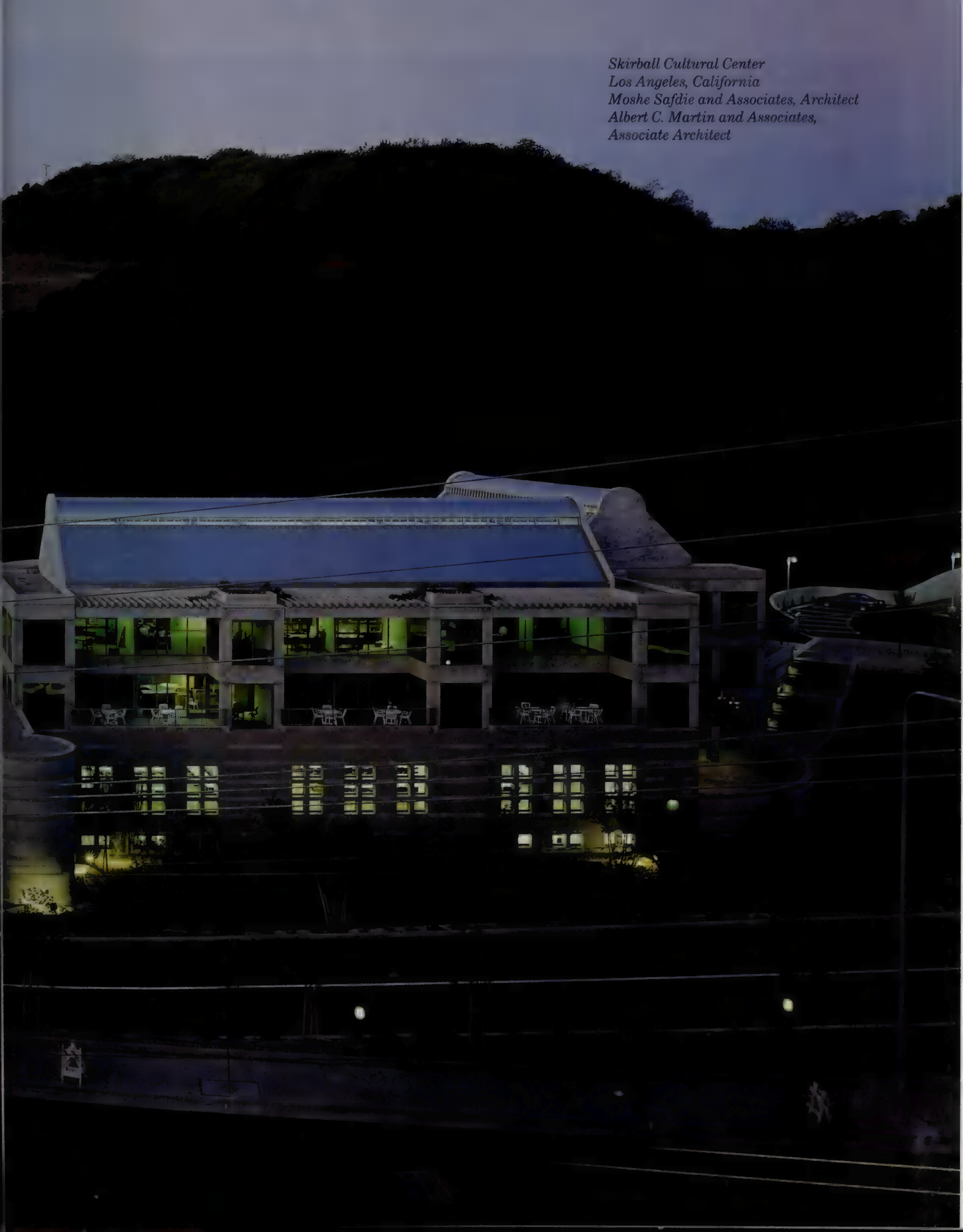
Venturi, Scott Brown & Associates initially conceived the public foyer as a domed space. Though the approach was eventually eliminated by La Jolla's 30-foot building-height limitation, vestiges of the idea remain in the white neon-ribbed fins that appear to have collapsed into an oval cutout in the ceiling (opposite). The seven-pointed star, meant as a beacon of the museum's transformation, dominates the trapezoidal lobby. Venturi modeled his solution on Michelangelo's Capitoline Hill in Rome, a favorite reference. The terrazzo floor is sprinkled with giant dalmatian dots. Artist Alexis Smith's "Men Seldom Make Passes at Girls Who Wear Glasses" is on view. A new cafe overlooks the entry pergola (top left). Meeting rooms and galleries have ocean views (middle and bottom left). At the stair to the lower level, a view through time and place: a VSBA-scale window into a Gill gallery and out to the sea (bottom right).

Credits
Museum of Contemporary Art, San Diego
La Jolla, California
Architect: *Venturi, Scott Brown & Associates—Robert Venturi, Denise Scott Brown, principals-in-charge; Ann Trowbridge, project manager; John Hunter, project architect; Brian LaBau*
Associate Architect: *David Raphael Singer*
Engineers: *Lopez Dunn Ramirez & Associates (structural); Engineering Group (mechanical); Ila + Zamitt (electrical)*
Consultants: *Garbini + Garbini (landscape); Fisher Marantz, Renfro, Stone (lighting); John Manning (food service)*
General Contractor: *Centex Golden Construction Company*

City on a Hill

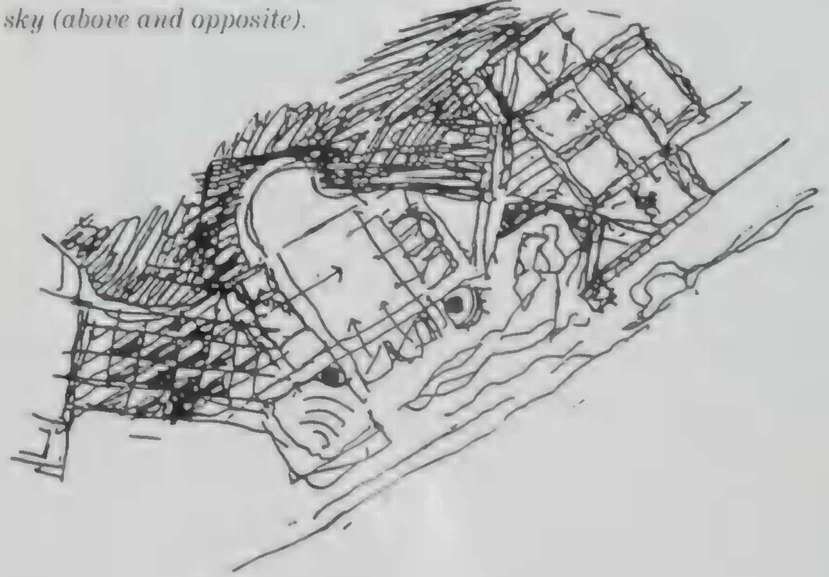
Moshe Safdie builds a miniature town in the Santa Monica Mountains that tells the story of American Jews.





Skirball Cultural Center
Los Angeles, California
Moshe Safdie and Associates, Architect
Albert C. Martin and Associates,
Associate Architect

Excerpts from Moshe Safdie's sketchbook show early concepts (below and opposite). Stainless-steel roofs are meant to reflect sky (above and opposite).



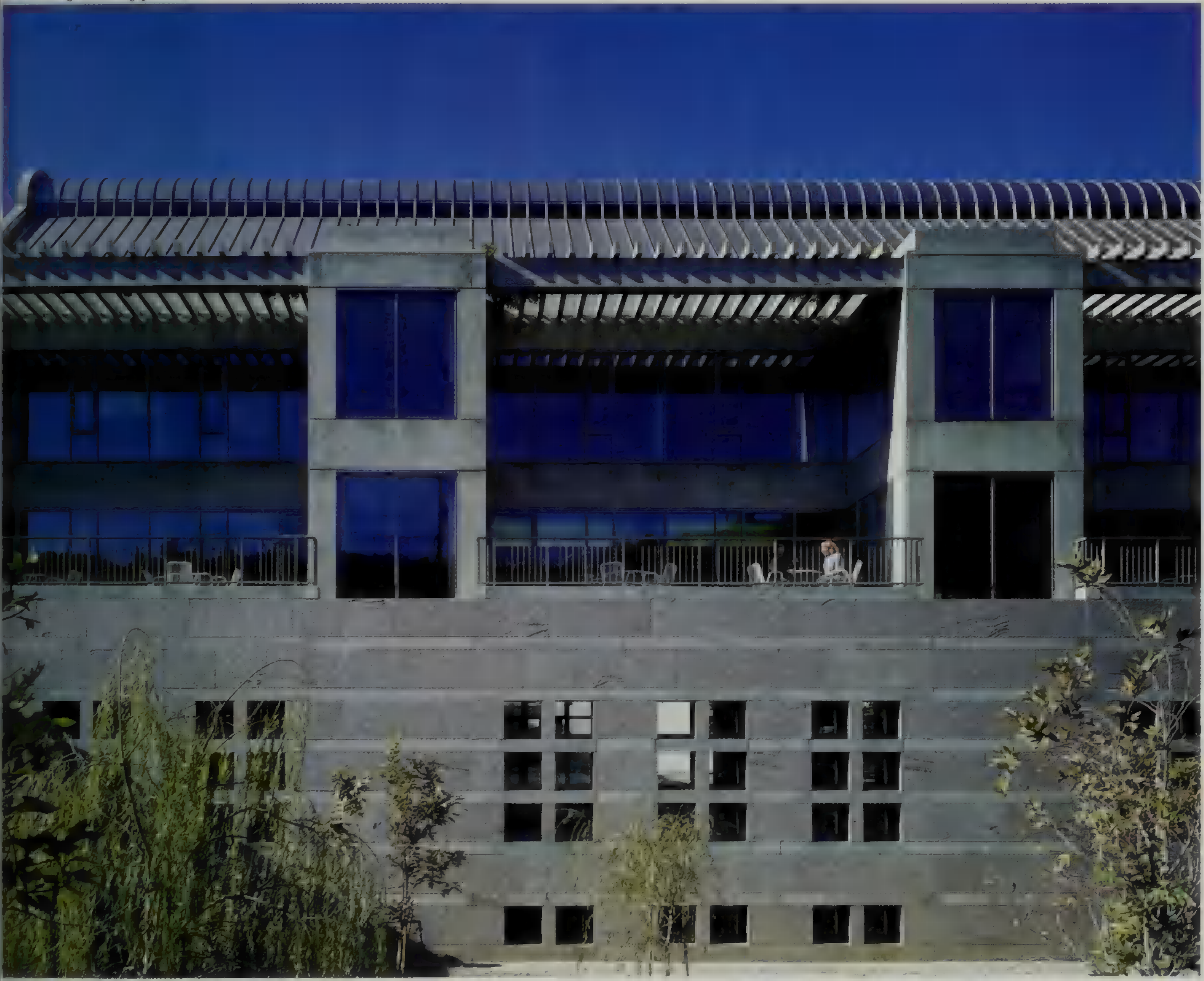
The Skirball Cultural Center, an outgrowth of the Hebrew Union College in Los Angeles, has its first real home in a Moshe Safdie-designed, 125,000-square-foot, $65-million complex. Located on a 15-acre site in the Santa Monica Mountains, it's a few ridges and one San Diego Freeway exit away from Richard Meier's magnum opus, the Getty Center—six buildings on 110 acres scheduled to open to the public in the fall of 1997 [RECORD, October 1991, pages 80-87]. Due to their proximity and their roles as cultural "cities on a hill," comparisons between the Skirball and the Getty are inevitable and, for the former, somewhat unfortunate. Factoring in issues of size and budget (the Getty's official budget has already topped $700 million), the comparison is certainly not stacked in Skirball's favor, even though it does plan to benefit from the run-off of the Getty's projected 1.5 million visitors per year.

Yet the notion of each commission as a masterwork by its particular architect—the culmination of a decade or more of mature study—resonates in both complexes. Skirball, awarded to Safdie in 1985 after an extensive architect search, is the Israeli-born, Canadian-national, Boston-based architect's first major civic project in the United States. Also, he says, it deals with an issue that has been on his mind since the completion of his controversial Habitat housing project at the Montreal Exposition of 1967: authenticity. For Safdie, the search for authenticity in his architecture raises two lingering, if somewhat rhetorical, questions: "Does [a] building make the most of the place?" and "To what extent does the program generate the building's form?"

As answered by Uri Herscher, founding president and chief executive officer of the Skirball Cultural Center, the complex is a three-dimensional representation of his institution's mission, born from its site. "It wasn't a building project," says Herscher of the first five years of working with Safdie. "It started with a programmatic ideal. It *became* a building project." The program of the center—combining exhibitions depicting Jewish artifacts and traditions (the core collection is called "Visions and Values: Jewish Life From Antiquity to America") with a broader-ranging cultural and educational series of lectures, concerts, and performances—is equal parts tradition and invention. What emerged as its organizing form: bunker-like masonry geometric shapes topped with stainless-steel gables with barrel tops that are meant to mirror the sky, presents an unmistakable public image of solidity and reflection. Combining cast-in-place concrete with stainless steel, pinkish stone, and green slate, Safdie created a hybrid of foreign culture and new place—the architectural equivalent of an immigrant.

While the organization of the Skirball's parts and pieces—the route from parking entry; the overlap and, at times, unclear distinction between exhibition, conference center, and scholar-dedicated areas—is confusing to the first-time visitor, the plan's looseness is, perhaps, a deliberate attempt to imply that the path of Jews to America has not been a linear one. The sense of meandering through time and place is reinforced by a series of courtyards that lead from outside to inside to outside not only to make outdoor "living rooms," but also to conjure an ancient Middle Eastern town tucked among the hills. In this project, Safdie dedicated himself to expressing the virtues of a place whose mission is both educational and symbolic. In wrestling with the overt symbols of Judaism, he noted that, over history, "Jews built in the architecture [style] of the place [they lived in]," noting that "a Jewish architecture," if such a thing existed, "would come out of a respect for nature." In trying to invent one, the architect embraced a cause that, like the struggle for authenticity, is as personal as it is professional. *Karen D. Stein*

© Timothy Hursley photos

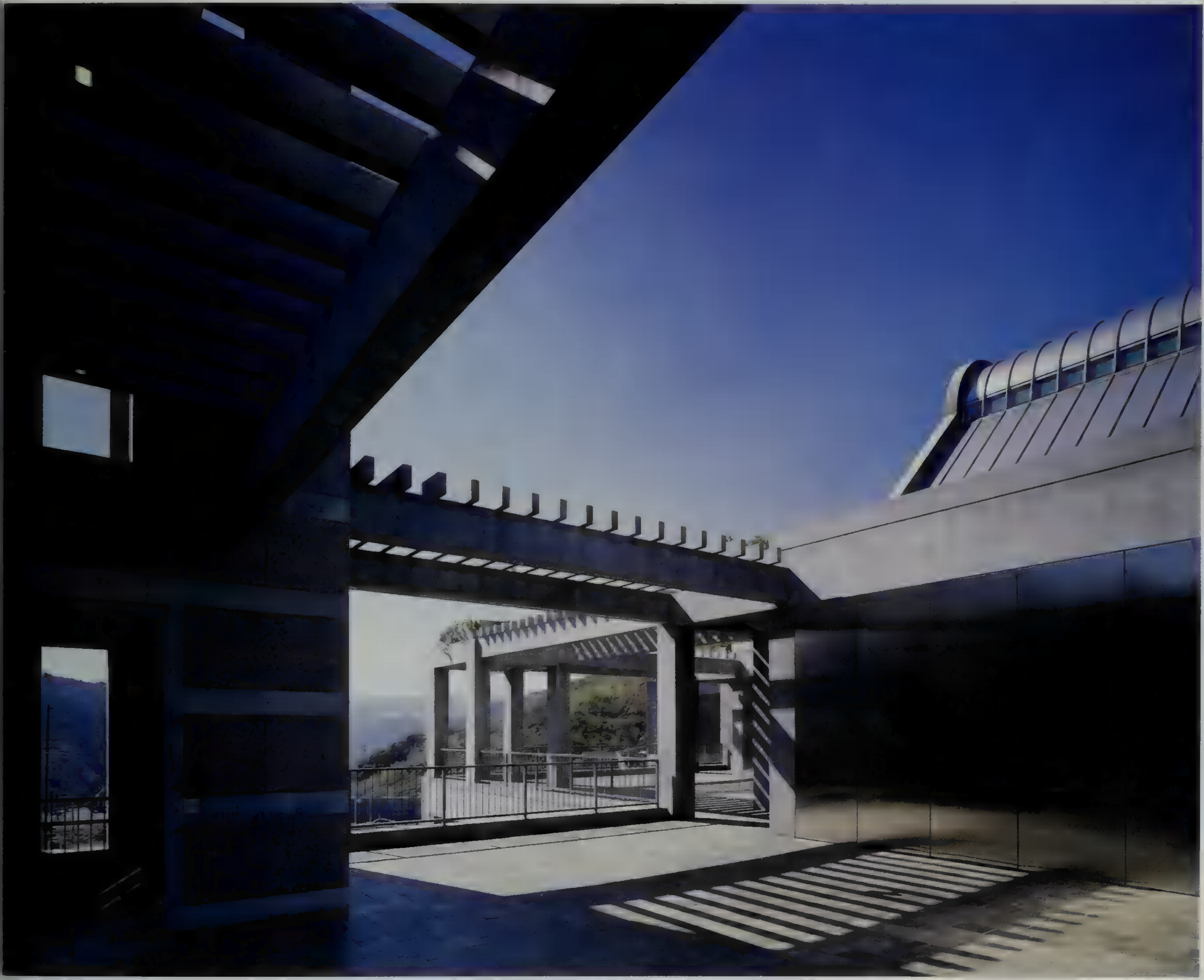


Up Close

Challenges: Incorporate what was once a museum of Judaica and Jewish art, located on the Los Angeles campus of Hebrew Union College, into a cultural center with a more extensive program whose primary mission is, according to founding president and chief executive officer Uri Herscher, "to tell the story of the Jewish people from antiquity to the present day, with particular emphasis on the American experience."

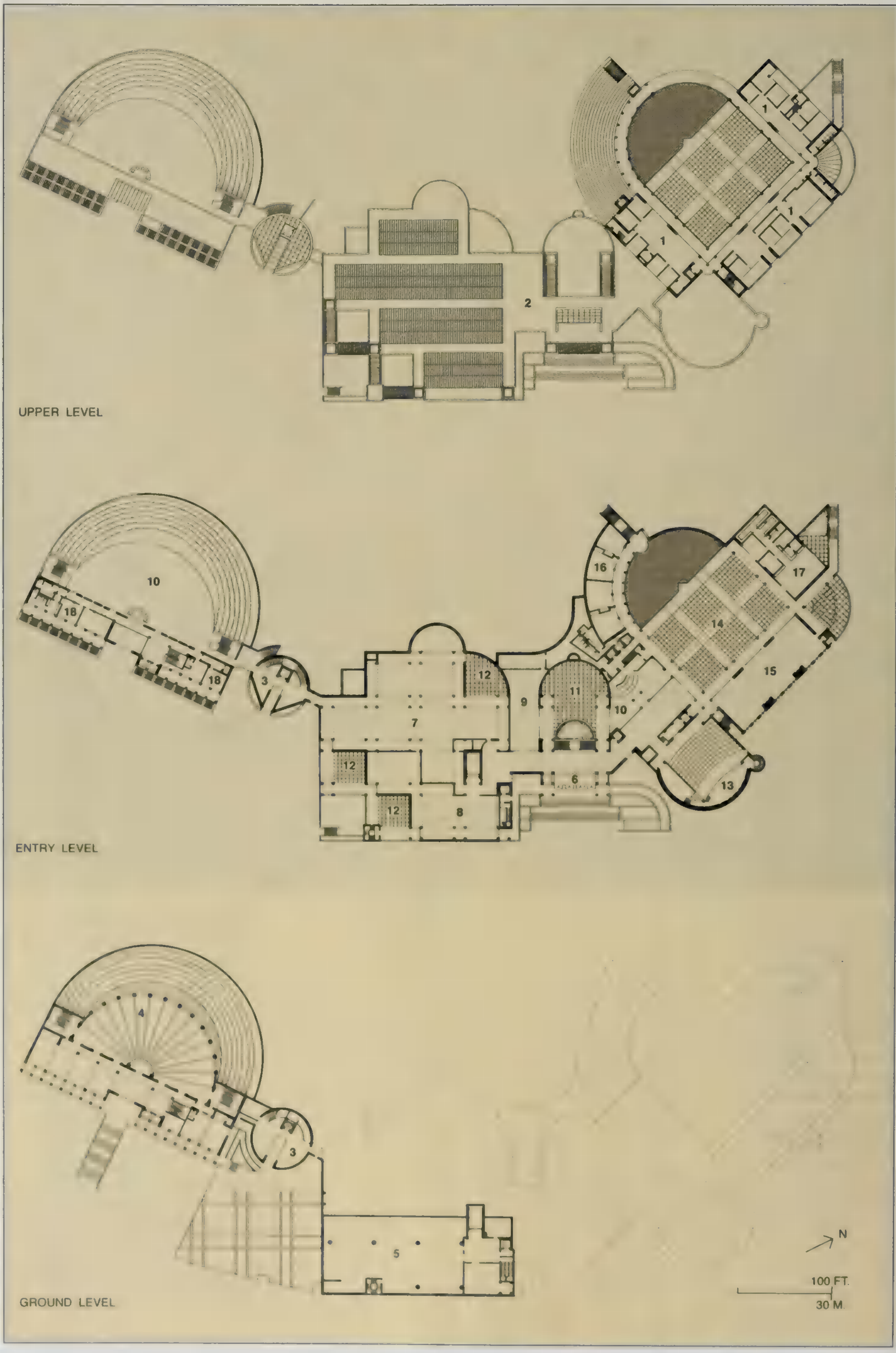
Program: Provide core collection and temporary exhibition space; a conference center with adjoining meeting rooms, classrooms, and auditorium that can be rented to appropriate outside event organizations; curatorial, administrative, and staff offices; a restaurant, a museum shop, and outdoor plazas.

Solution: Following the acquisition of a 15-acre site in the Santa Monica Mountains in 1983, Herscher and the Skirball trustees embarked on an extensive search for an architect, which resulted in the 1985 selection of Moshe Safdie, architect of the new Hebrew Union College campus in Jerusalem. The $65-million,125,000-square-foot Skirball Cultural

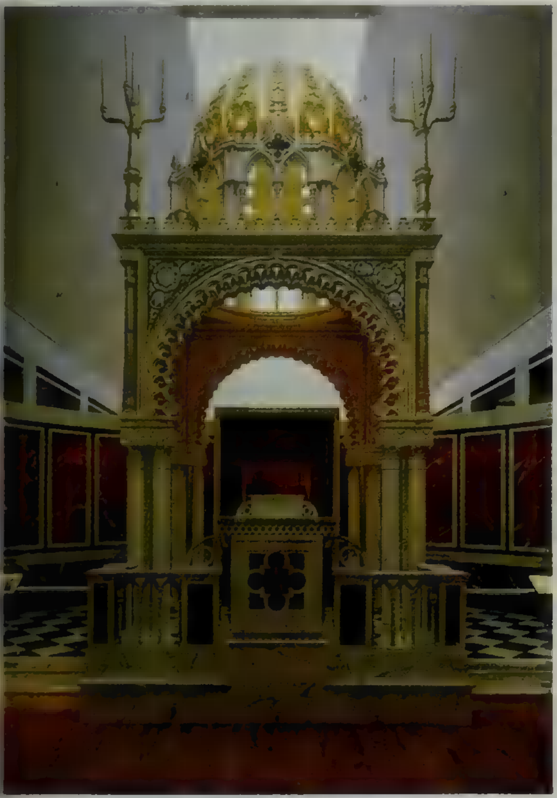


Center complex is organized around two central massing elements: the museum with 13,000 square feet of permanent collection space, and 4,000 square feet for changing exhibitions, and the education center, which includes a 300-seat auditorium, each located adjacent to its own parking facilities. Linked by a public foyer and a series of trellised courtyards that overlook the mountains, the forms are clad in cast-in-place concrete with infill panels of pinkish clay stone, stainless steel, and green slate. Roofs are covered in stainless steel.

Offices and the education center overlook an internal courtyard enhanced by the lilac-colored flowers of jacaranda trees and a lily-filled pond (opposite top). The museum foyer overlooks a courtyard with a blue enamel-on-steel sculpture by Vera Ronnen-Wall inset into a curved concrete wall (opposite bottom left). Throughout the complex trellises create a play of shadow on the paved plazas of outdoor reception areas (opposite bottom left and above), while the stainless-steel gables project their profile against the Santa Monica Mountains.



1. *Offices*
2. *Roof*
3. *Children's Discovery Center*
4. *Ballroom*
5. *Museum storage*
6. *Main entrance*
7. *Permanent exhibitions*
8. *Temporary exhibitions*
9. *Gift shop*
10. *Cafe*
11. *Donor courtyard*
12. *Terrace*
13. *Auditorium*
14. *Academic courtyard*
15. *Conference room*
16. *Classroom*
17. *Library*
18. *Communication center*
19. *Amphitheater*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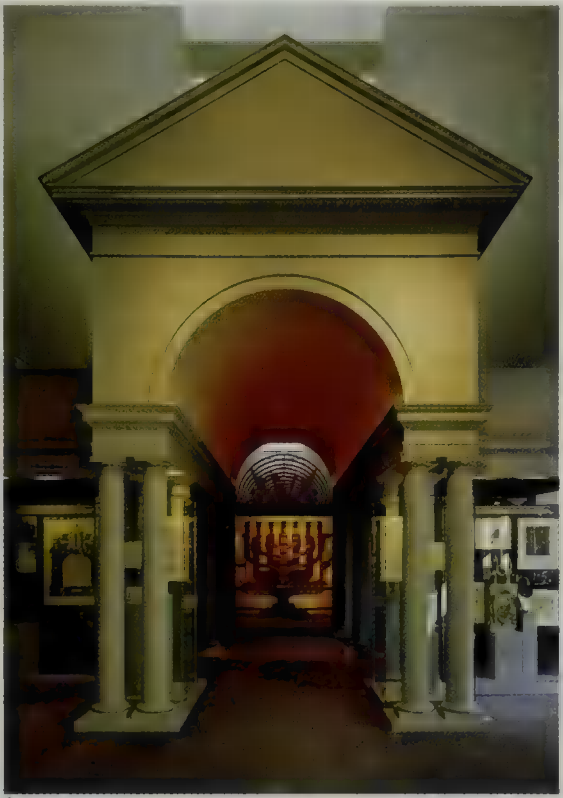
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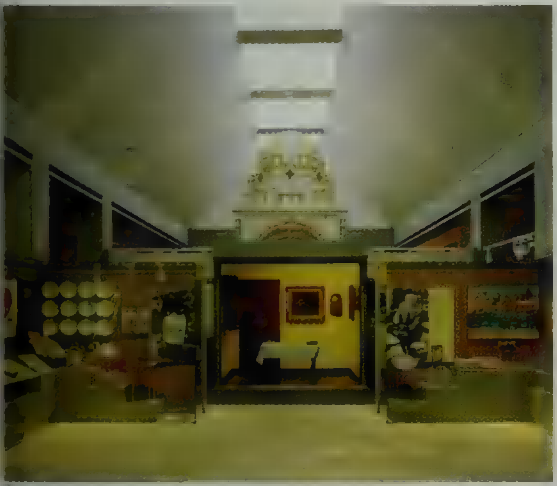
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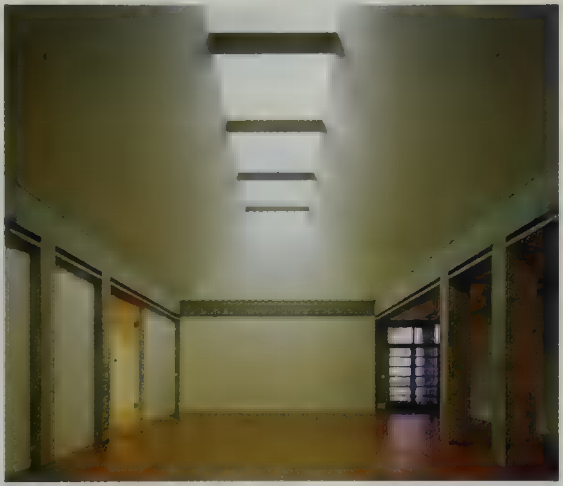
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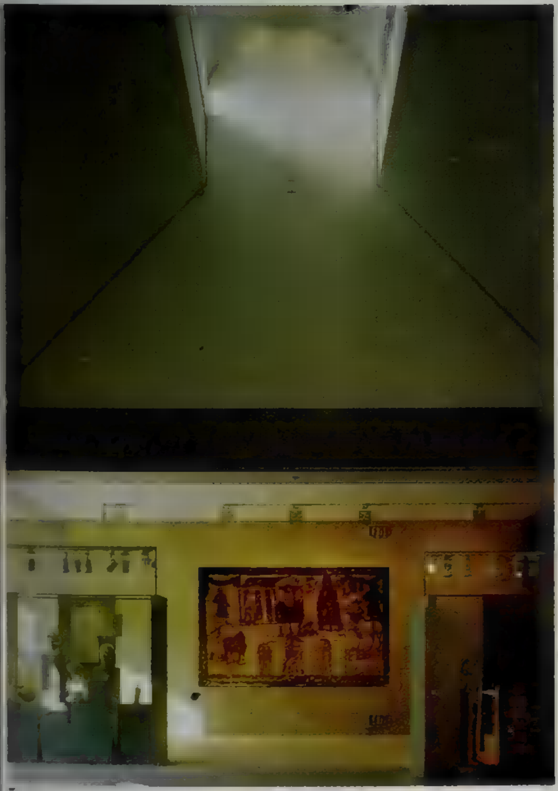
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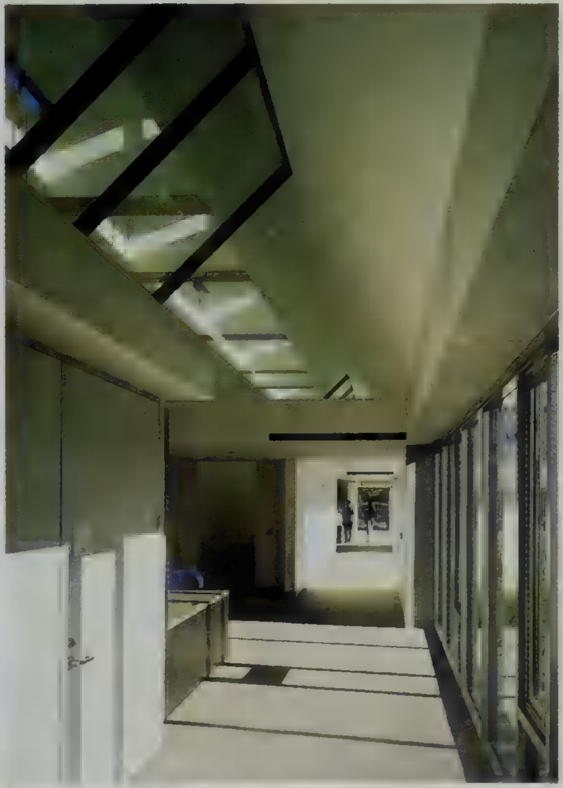
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"A story told through objects," is how Skirball Cultural Center president Uri Herscher describes the exhibition component of his institution (photos **1, 2, 3,** *and* **5**), *which depicts the lives and traditions of Jewish people, particularly those that have immigrated to the U.S. Permanent and changing installations include objects, photographs, film, and sound recordings, so a variety of lighting types is employed, including the diffused daylight admitted through the barrel vaulted light monitors* (**4**) *and skylights in the office block* (**6**).

Credits
Skirball Cultural Center
Los Angeles, California
Owner: *Hebrew Union College*
Architect: *Moshe Safdie and Associates—Moshe Safdie, principal-in-charge; Isaac Franco, Jim Herold, Ken Janson, Steve Baker, Jeff Jacoby, Hugh Phillips, project team*
Associate Architect/ Engineer: *Albert C. Martin and Associates*
Consultants: *Emmet L. Wemple & Associates (landscape); Dithmer & Krabbendam (interiors); Jean Jacques André Consultants (exhibition); Fisher Marantz Renfro Stone (lighting); Paul S. Veneklasen and Associates (acoustical); Chapman Ducibella Associates (security); Richard D. White (specifications); Jon Roll & Associates (signage)*
General Contractor: *C.L. Peck/Jones Brothers Construction Corporation*

An Industrial Prototype That Sells Itself

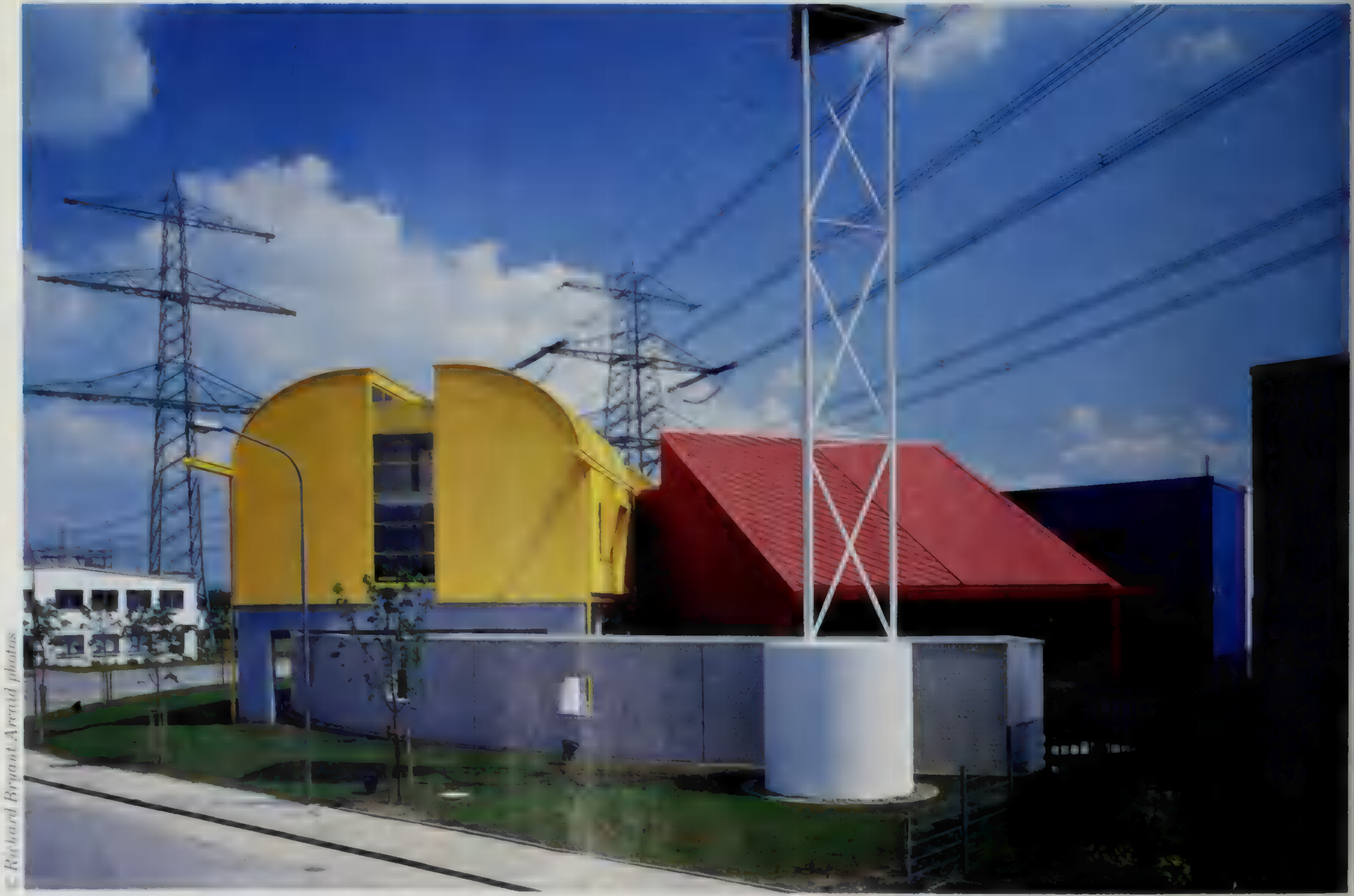
Marshall McLuhan would have loved it: a building for selling and distributing building products that's made with the products it promotes. And the architects who designed the building also helped develop one of the primary building products it uses. Talk about the medium being the message!

Designed as a prototype for a series of regional sales and distribution centers in Germany, the Sto AG depot in Hamburg goes beyond its humble industrial-building type to become an important element in the company's marketing strategy and a kind of three-dimensional advertisement. Sto, a German manufacturer of stucco, wall-cladding systems, and paint, wanted to use the building to integrate sales, product display, distribution, and customer training in one facility, at the same time selling directly to architects and its usual market of contractors and builders.

To get the attention of architects, the company "deliberately chose to work with an internationally known architect," says Jochen Stotmeister, chairman of the board of Sto. Stotmeister had been impressed by the work of James Stirling Michael Wilford and Associates, especially the firm's buildings at Harvard, Cornell, and the University of California at Irvine, which all used Sto products. After Stirling's death in 1992, Sto became one of Michael Wilford and Partners' first clients and, indeed, the Hamburg depot is the firm's first completed project.

To provide flexibility so that future versions of the prototype can fit on a variety of sites, the architects broke it into four discrete components—a warehouse, an office wing, an exhibition area, and a customer-training pavilion. The location of each can vary to meet specific site conditions (diagrams, opposite right). "We standardized the four pieces, but they can be assembled in different ways," explains Wilford.

Like most industrial buildings, this one is set in a nondescript area on the fringe of town. "One of the key design issues," explains Wilford, "was how to establish the identity of the company in this featureless urban environment." By giving each of the depot's four components its own form and primary color, the architects made sure the complex has more visual impact than its relatively small size (35,000 sq ft) would normally command.



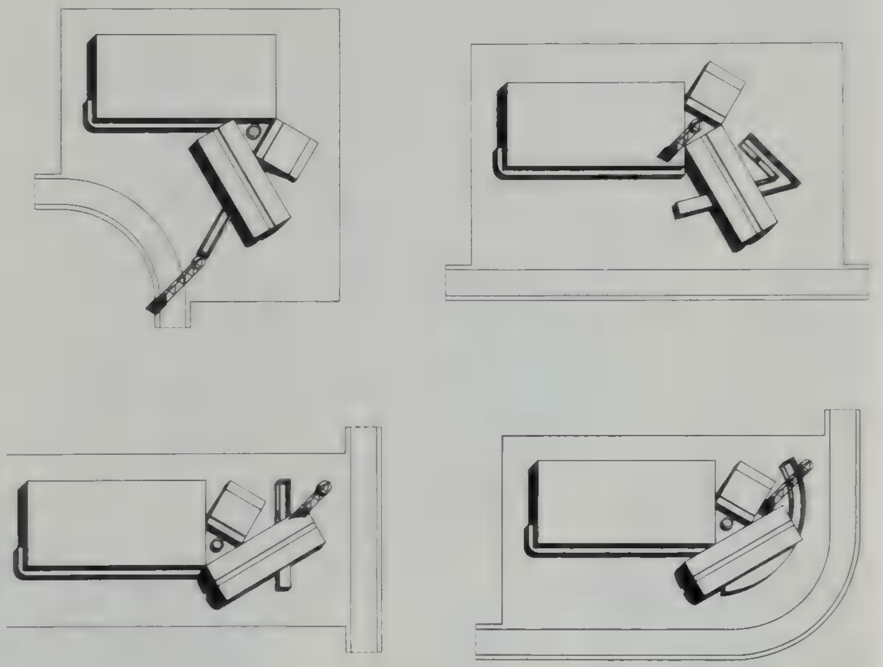
© Richard Bryant/Arcaid photos

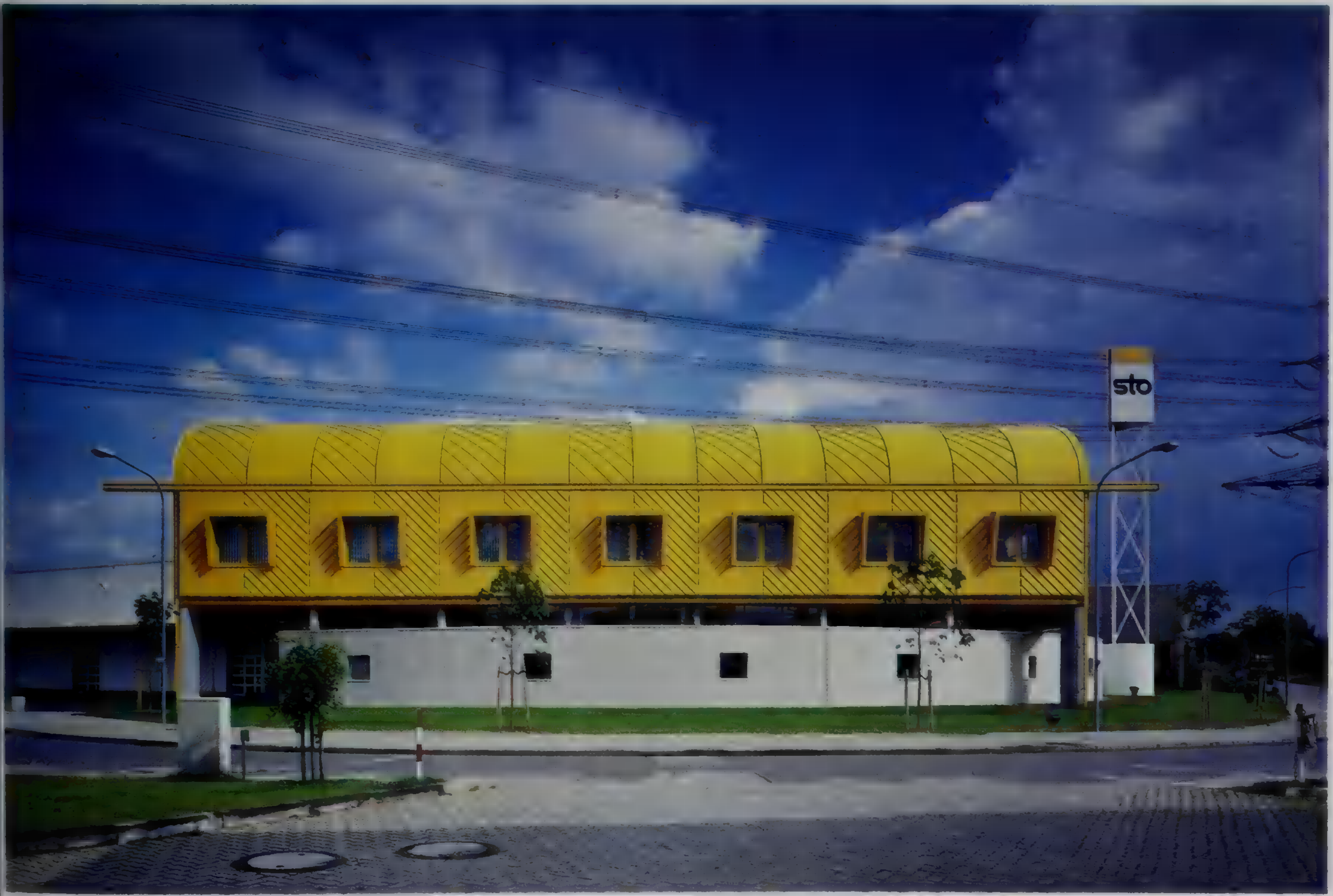
Designed as a kit-of-parts, a new distribution center in Germany can be repeated on other sites.

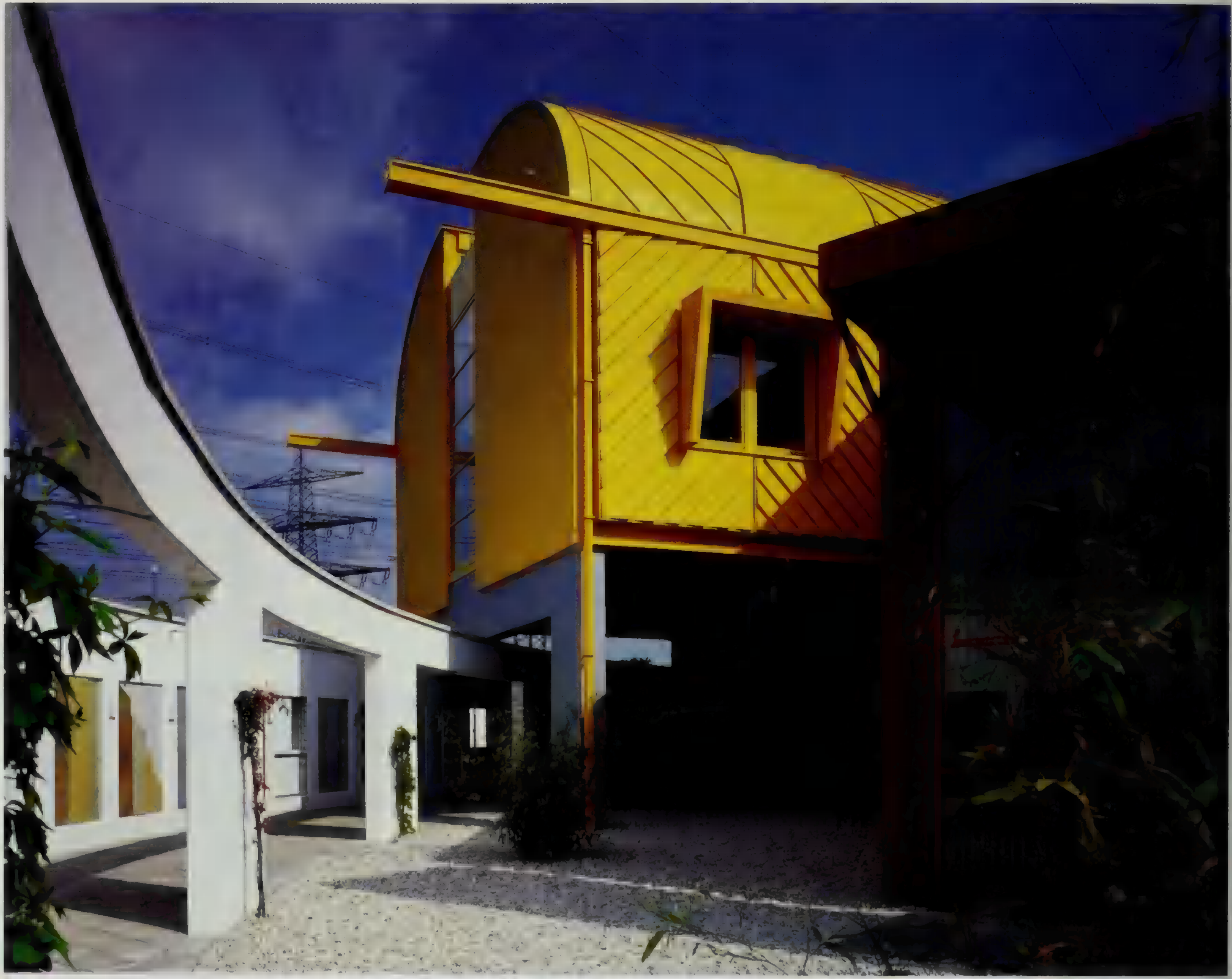
Sto Regional Depot
Hamburg, Germany
Michael Wilford and Partners, Architect

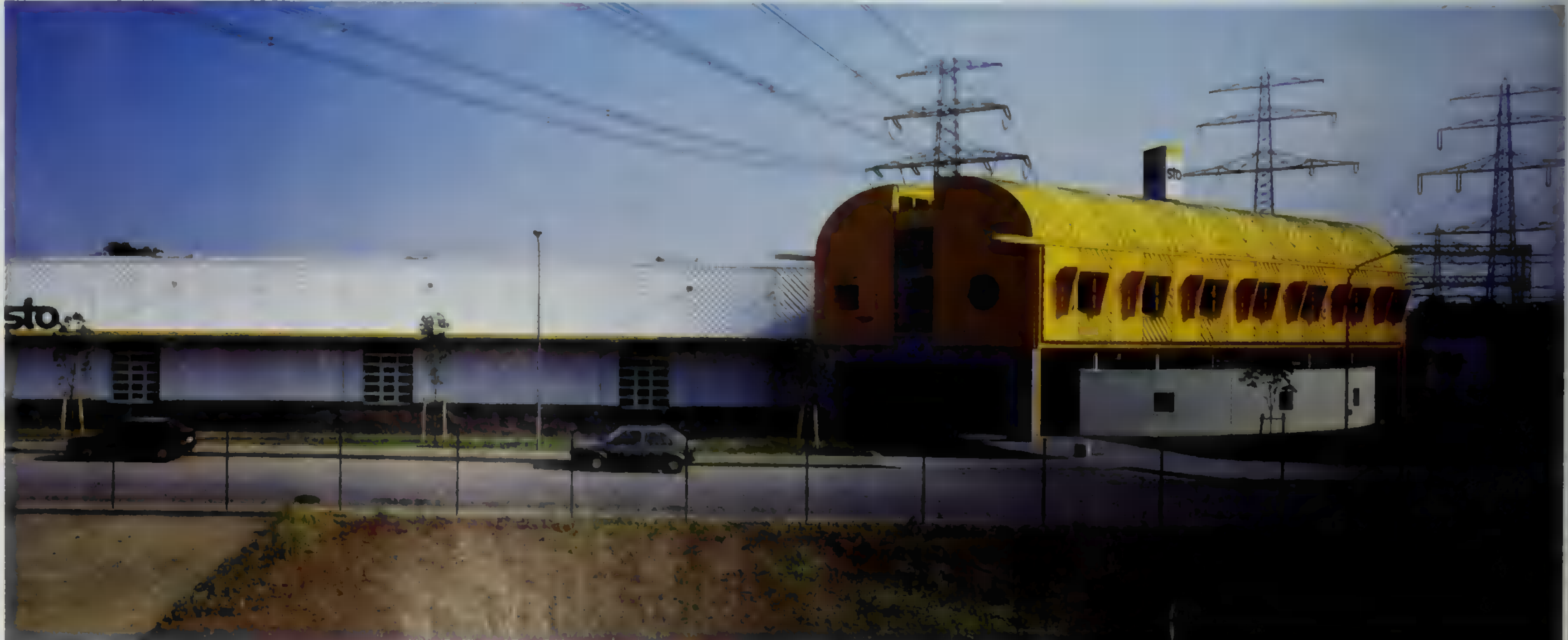
"We wanted the building to promote the company's products," says Wilford. Working with Sto, Wilford and his associates developed a new prefabricated cladding system that uses composite panels made of insulation, stucco, and weatherproofing. The panels are delivered to the site with slotted fittings installed and are bolted directly to the building's steel frame. Angled trapezoidal insulation planks inject a dynamic quality to the new product. "Rather than conceal the prefabricated nature of the building, we wanted to celebrate it," says Wilford. The architects had wanted to use the cladding system for the building's roofs as well as its walls, but the technology wasn't quite ready to be pushed that far, so sheets of aluminum were used instead.

Like many buildings today, the Sto depot must work for vehicles and people. Orders can be taken either at a "drive-up" window near the entry or inside at the operations counter. Orders are delivered to customers' vehicles at the warehouse's glazed doors. What's more surprising is the quality of the environment for customers and staff. Not many industrial-supply buildings have a small café or a garden protected from the street. And sales staff rarely get light-filled offices and a second-story courtyard for themselves. *Clifford A. Pearson*





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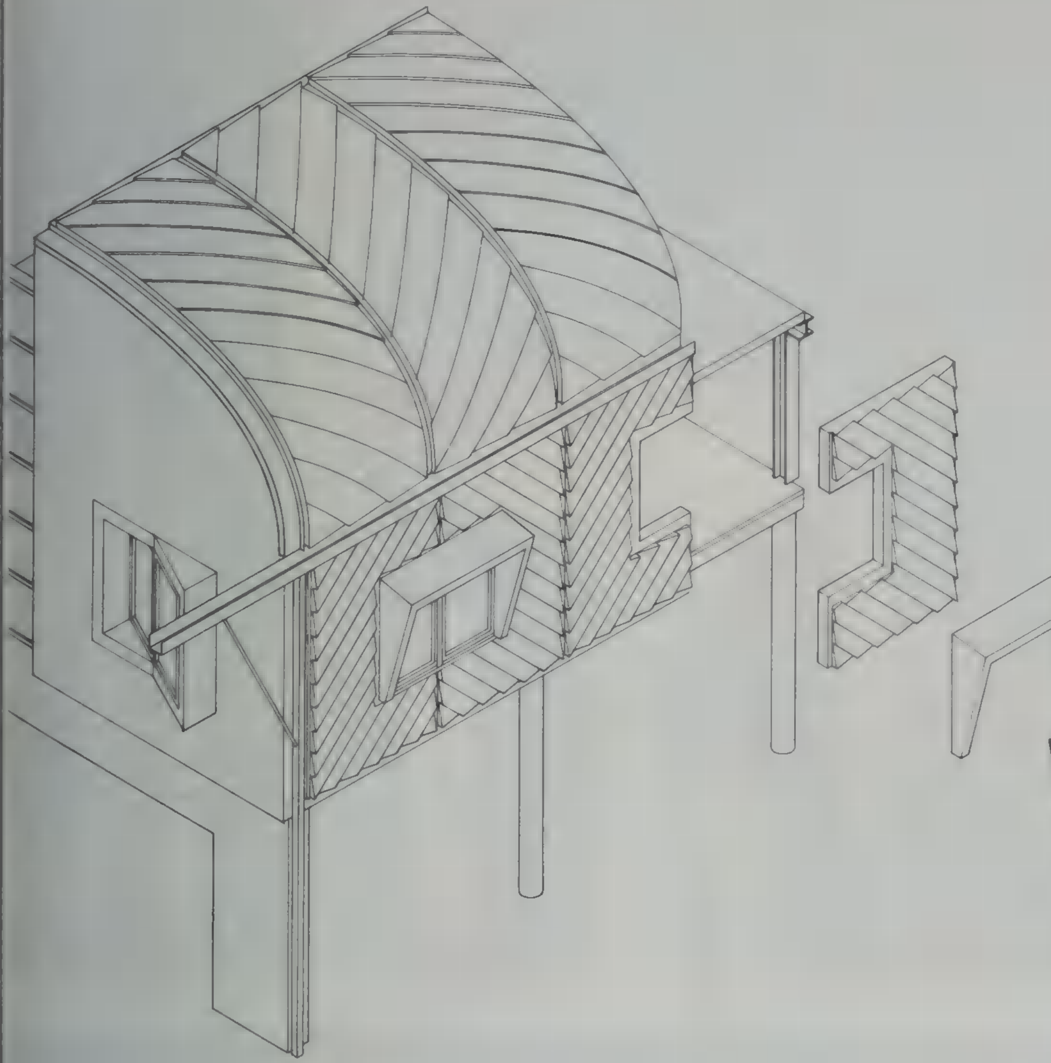
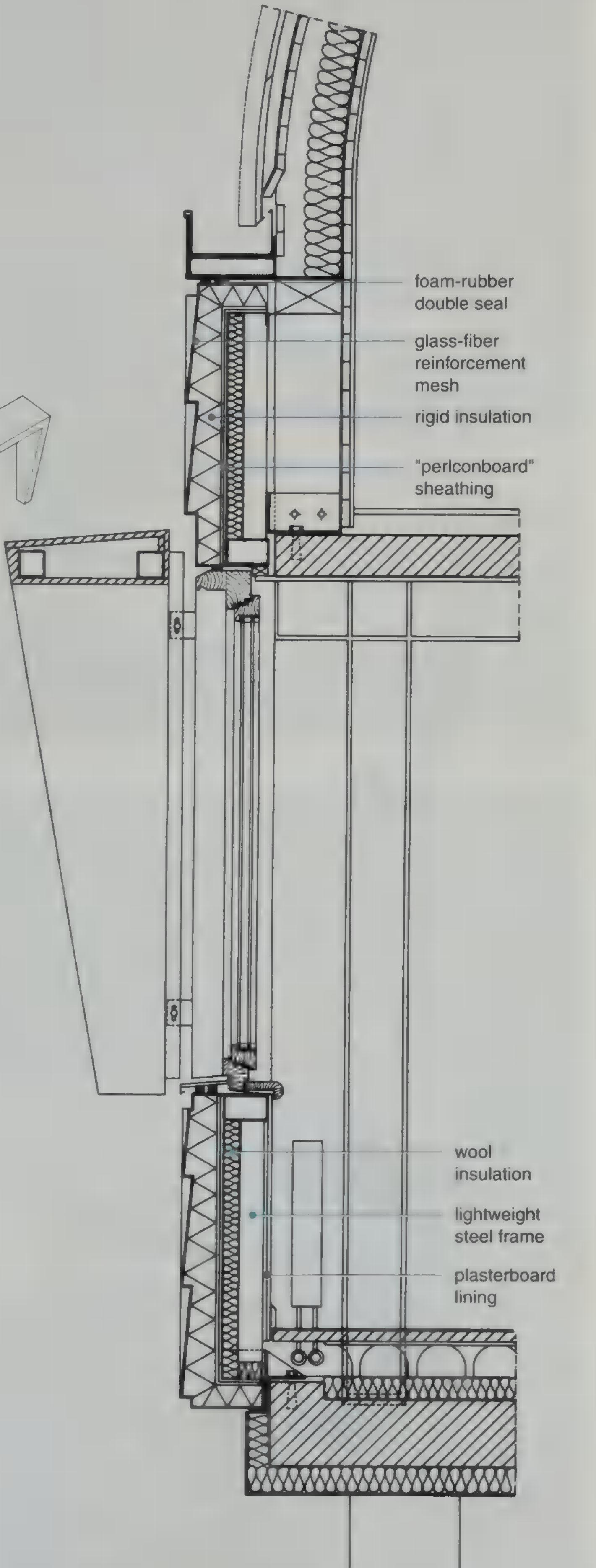


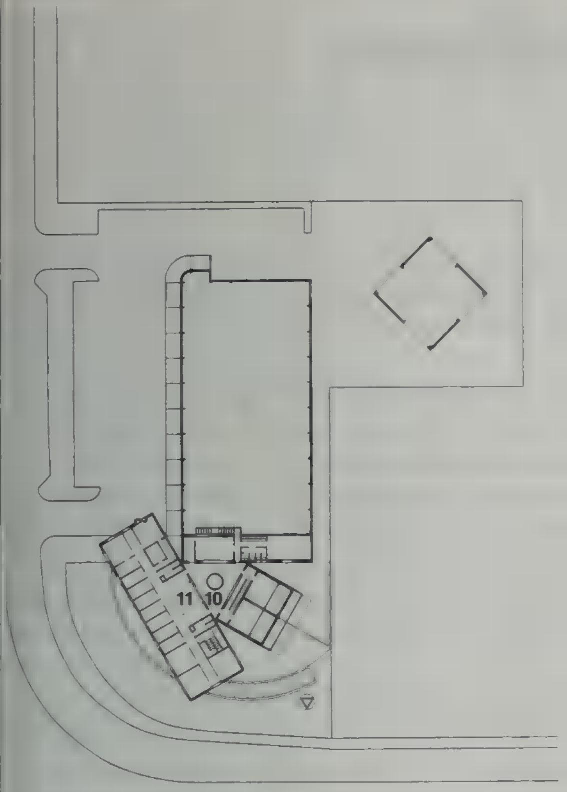
Set on a corner lot, the depot was designed to grab the attention of people in moving cars (previous pages) and quickly express the fact that various functions take place here: offices under a yellow barrel-vaulted roof, training in a sloped-roof pavilion, product display behind a curving wall, and distribution from a canopied shed that mimics the yellow stripe and white background of the Sto logo (bottom opposite). A curving loggia protects a garden (top opposite), then becomes as a display wall inside the building.

Public functions, including sales, product display, and customer training, are housed on the ground floor. Offices and a private courtyard for the staff are on the second floor.

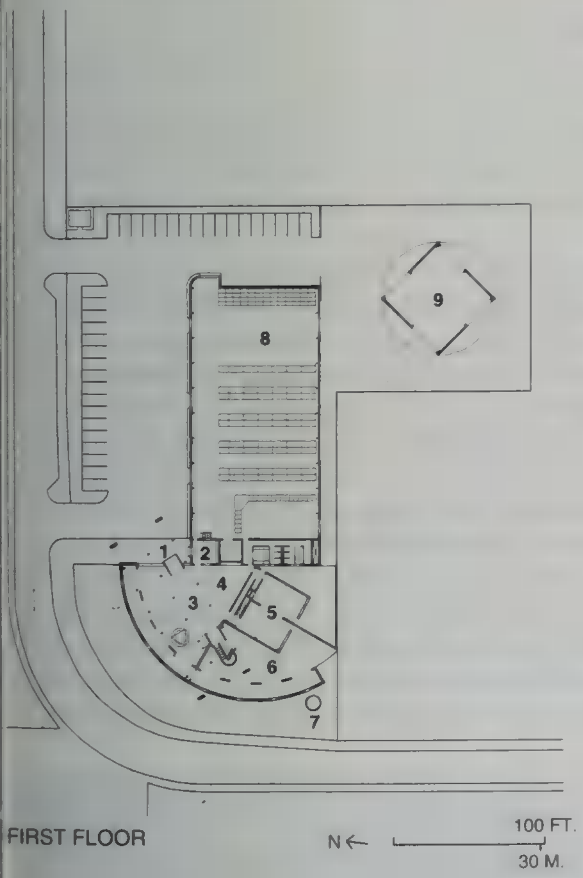
While all of the depot's main components are steel-frame structures, the office block sits on a poured-concrete "table" straddling the first-floor exhibition area. The building's skin is a prefabricated cladding system (axonometric above and wall section right) that comes in panels ranging in size from 4 m-by-2.5 m (13.2 ft-by-8.25 ft) to 12 m-by-2.5 m (39.6 ft-by-8.25 ft), maximum transportable length. Because water infiltration is often a problem with panelized systems, expanding-adhesive, double seals were used for joints.



OFFICE BUILDING WALL SECTION



SECOND FLOOR



FIRST FLOOR

1. *Entrance*
2. *Drive-up orders*
3. *Exhibition*
4. *Operations counter*
5. *Training*
6. *Garden*
7. *Tower*
8. *Warehouse*
9. *Storage*
10. *Courtyard*
11. *Offices*

The heart of the depot is the operations counter (opposite top), located in the triangular space where the building's four main components come together. While the components may relate to each other in a variety of ways in future incarnations of the prototype plan, they will always meet at the operations counter, "the fulcrum" for the entire design, says Wilford.

Since Sto manufactures paints, color is an element the architects were encouraged to use prominently. While primary colors were applied on the exterior of the building, a range of softer hues were used inside.

The courtyard on the roof above the operations counter helps bring daylight into second-story offices and a conference room (opposite bottom). Offices feed off a double-loaded corridor that is brightened by generous glazing at either end (below). Thanks to a long skylight and three glazed doors, the warehouse also enjoys more daylight than is typical in this building type.

Credits
Sto Regional Depot
Hamburg, Germany
Owner: *Sto AG*
Architect: *Michael Wilford and Partners—Michael Wilford, Manuel Schupp, Charlie Sutherland, Kenneth Beattie, Jürgen Engelhardt, Markus Mangold, Stuart McKnight, Ian McMillan, Jutta Simpsendorfer, design team*
Site Supervising Architect: *Rüdiger Franke*
Engineers: *Boll & Partner (structural); Jaeger Mornhinweg & Partners (mechanical); Werner Schwarz Gmbh (electrical)*

Opportunities on the Sidelines

The demand for buildings that can be used to house sports, both the increasingly popular single-sport facilities like baseball parks, and multi-use arenas that can host different athletic events and activities like concerts and conventions, has boosted the annual value of this construction-market sector into the hundreds of millions of dollars in recent years (see graph with F.W. Dodge data opposite page). It has given rise to what one day may be looked back upon as the golden age of modern sports architecture, having spawned new kinds of architectural form, unprecedented activity, and even a new type of architectural firm that specializes in sports facilities.

Does this indicate a huge opportunity for architects other than those firms like HOK Sport, Ellerbe Becket Co., and HNTB Corp., who already have an established presence in this market? Probably not. But architects may well find work in the areas immediately surrounding new facilities as citizens who are planning them realize athletic venues should not be planned in isolation to their neighborhoods, but as a part of overall development strategies.

Architects who don't do sports facilities will find their best opportunities in redevelopment projects in adjacent areas.

A number of factors have played into the activity of the sports market over the last 15 years. Expansion teams needed new venues, and older facilities didn't have enough seating capacity, efficient concessions, or new innovations like club-level seating or luxury suites that mean millions of dollars in extra income for team owners. At the same time, player salaries skyrocketed and owners argued that they needed more revenue to keep the best players on their teams.

The owners' point of view has had a certain logic: seating capacity, the number of luxury suites, and the quality of facilities are primary drivers behind sports' revenues. But in their quest to maximize profits, some team owners have been almost as willing to trade cities as they are to trade players. According to an article in the January 16, 1996 *Investor's Business Daily*, at least 30 major professional sports teams were looking for new places to play either in the cities where they were located or elsewhere.

If 30 teams are looking for new homes, and they find them, it follows that many of the vacated venues will need new teams. But there are only so many professional sports teams to go around, and the owners of these teams need not increase this number to fill vacant facilities if they don't want to. In fact, it behooves them to ensure a shortage of teams for the simplest of economic reasons: when the demand for teams outstrips the supply, team owners can call the shots. A shortage of teams pits city against city, and politician against politician. It is the best of all possible worlds for team owners. Earlier this year Yankees owner George Steinbrenner had New York City Mayor Rudolph Giuliani and New Jersey Governor Christine Todd Whitman battling each other like two star pitchers, each trying to outdo the other as the Yankees look for a new venue. Guiliani's offer is a $1-billion domed stadium on Manhattan's West Side.

The hidden costs of sports venues

The affection for athletic teams is an emotional, sometimes irrational, force. Rabid fans rally behind teams, putting great pressure on state and local politicians to keep them at home. Politicians and civic groups support the drive to build sports facilities at immense cost to taxpayers while agreeing to rent them to team owners at far below cost.

The infatuation with athletics is so intense that civic leaders, like Giuliani and Whitman, continue to push for teams and facilities despite an enormous need for money to pay for education, infrastructure, and the like, even when there is mounting evidence that the economic advantages of having a team in a city are negligible, or that they may have a negative impact on communities. For example, St. Petersburg, Florida's Suncoast Dome will have cost the city over $30 million in debt service and maintenance before a major-league team finally calls it home in 1998. In written testimony before Congress, economist Andrew Zimbalist of Smith College, Northampton, Mass., states, "Frequently, the stadium lease is on such concessionary terms that the city cannot even cover its incremental debt service with rent and other stadium revenues. The public ends up paying for the stadiums, only to generate millions of extra revenue that inevitably is divided

Neighborhood sports bars and souvenir shops (opposite) may not survive if the Yankees leave their current home (photos right) for Manhattan's West Side. Diverse business types help sports-venue districts prosper off-season.

"If you're going to justify one of these things economically, you've got to look at it in terms of the quality of life in a city," says Joe Spear of HOK Sport.

between higher player salaries and ownership profits." Edwin Mills, director of real-estate research at the Kellogg Graduate School of Management at Northwestern University, noted in a recent speech concerning Boston's proposed Megaplex, "The facility is important only insofar as it draws people from other areas who would not otherwise come to Boston. They bring new money into the local economy." And even when new money does come to town, the so-called "multiplier-effect" is said by Mills and others to have been overstated. The idea is that each time money is added to a local economy, and then respent within that economy, the money magically multiplies. Mills says that much more of this money actually "leaks" to other economies than most stadium proponents are willing to admit.

Also, local money itself doesn't create new spending. It is simply shifted away from other local recreation attractions. "Twenty-five dollars spent in connection with the Megaplex has no more economic value than $25 spent at the local cinema," says Mills. "The essential truth is that if people have more money taken out of their pockets for taxes [to pay for a new stadium or arena], they spend less. It is perfectly symmetrical with a positive multiplier-effect, but in this case, it is a negative effect."

Winning at the game

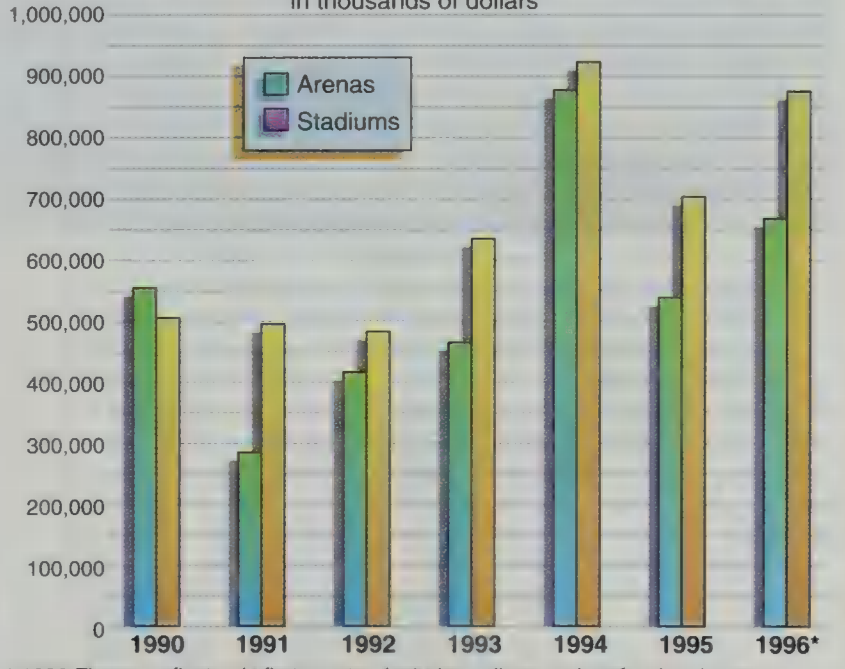
It seems unlikely that stadium and arena construction will ever completely disappear, even though a good case can be made against the public funding of sports facilities. For cities to benefit from this activity, sports facilities have to be planned as part of larger overall redevelopment efforts, or at least they should be sited as more diverse commercial districts. For example, the restaurants and sports bars near football stadiums, which have only a handful of home games each year, may become local destinations in some markets, but they can hardly be expected to become frequent out-of-town destination points on their own. The architects who become involved in designing the accompanying shopping, hotels, offices, and even residential developments—as well as attractions that are not seasonal such as the aquarium and science center that help anchor Baltimore's Camden Yards—may turn out to be the true winners in the game. HOK Sport Senior Vice President Joe Spear cites the South Market area in San Francisco, where a new Giants stadium has been proposed, as another location where such potential exists. "It's remarkable how much diversity was there after the earthquake and the demolition of the elevated freeways. I think a stadium there would make a real difference—it will bend the light rays, as it were—in what people think of the area and what they are willing to invest there." The proposed stadium for New York's West Side has a similar potential for reclaiming underused former industrial land from the surrounding area. Commercial and residential projects there would create many opportunities for architects.

"When you design something that could be as emotionally significant as Jacobs Field or Coors Field," says Spear, "you don't start out with a blank sheet of paper, you start out with the city. There is a lot of diversity to draw from, to shape the building, whether that's an arena or a football stadium, or what. Commercial diversity is extremely important to economic success."

The big picture

Whether sports facilities should be publicly funded, and if so, whether they will have the potential to benefit more than a few architects will always be debatable. But Spear says one of the best arguments in favor of stadiums is really intangible. "I think if you're going to justify one of these things economically, you've got to look at it in terms of the quality of life in a city, something that is hard to put in dollars and cents. If Cleveland lost its baseball team, what would that do to its image as a place? It's hard to say any of these stadiums have added X-percent to property values or the economy of these cities, but they have enriched the environment tremendously. I don't think you'd get any argument about that." *Charles Linn*

Four Quarter Moving Total: Stadium and Arena Starts
in thousands of dollars



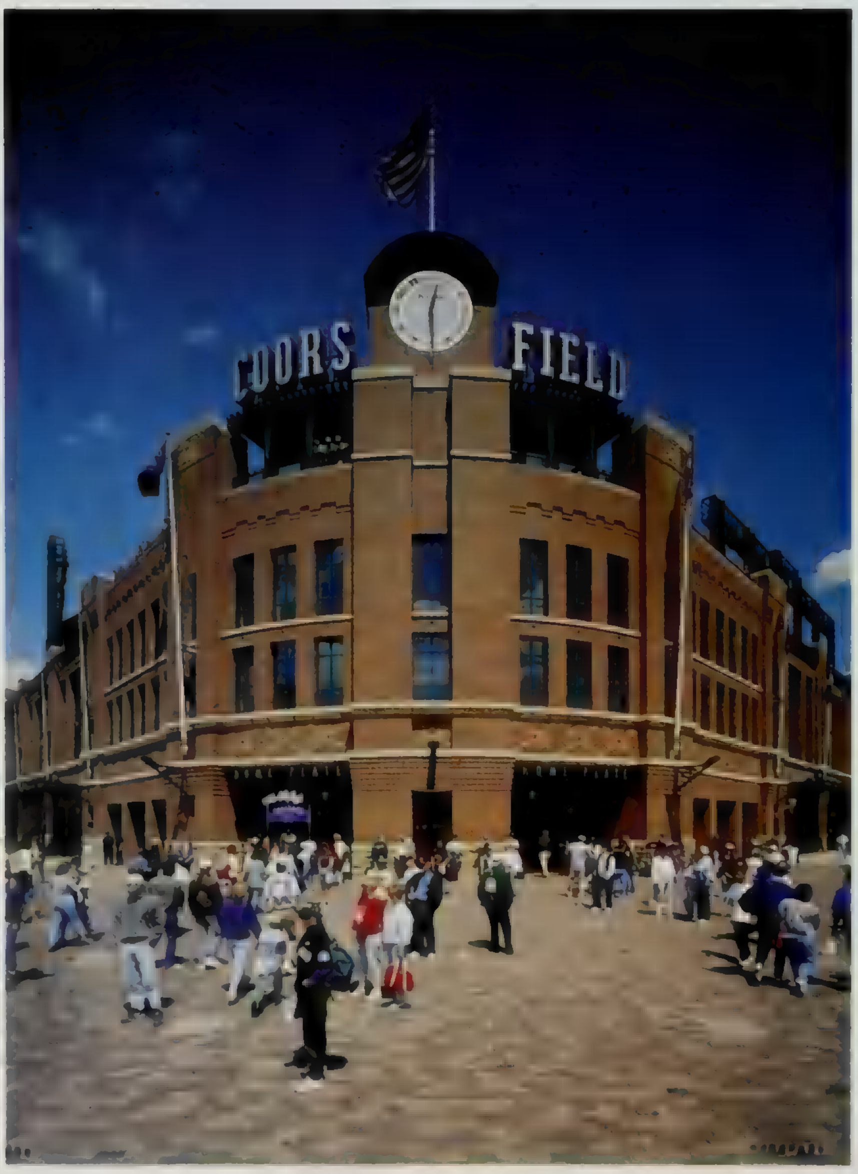
** 1996 Figures reflect only first quarter. Includes college and professional venues.*
Source: F.W. Dodge, a division of the McGraw-Hill Companies

Coors Field

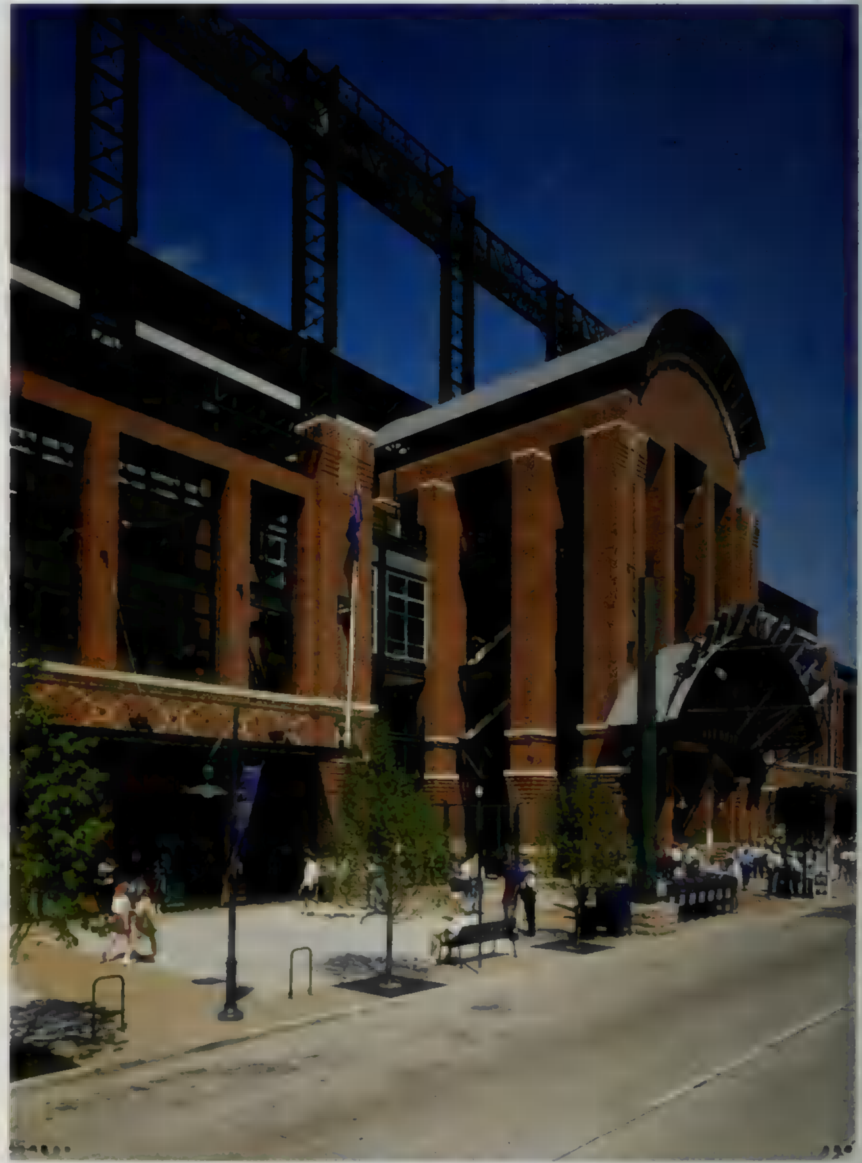
Denver, Colorado
HOK Sport, Architects

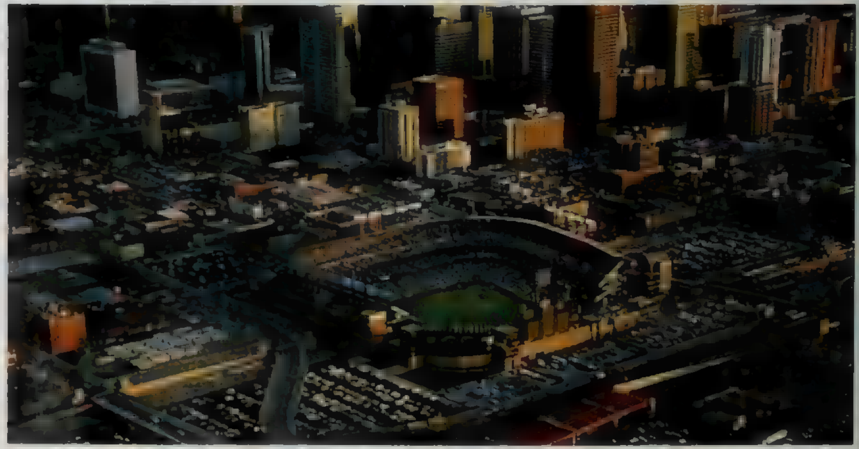
Comparisons between Coors Field and early ballparks are inevitable. While it is true that Coors' esthetic is a somewhat sanitized imitation of the gritty urban ballparks of old, which evolved over time through the addition of bleachers, fences, and signage, and whose outfields were often oddly shaped by the confines of irregularly shaped sites, one thing is sure: if you can't go back in time to Ebbetts Field, or the original Comisky Park, Coors Field might be the perfect place to capture the magic "crack" of ash on horsehide on a warm summer's night.

Coors Field is located in the shadows of old warehouses on the site of the former Union Pacific railyards in Denver's lower downtown district, an area that was once the locus of commercial activity for the entire



© Thorney Lieberman exterior photos

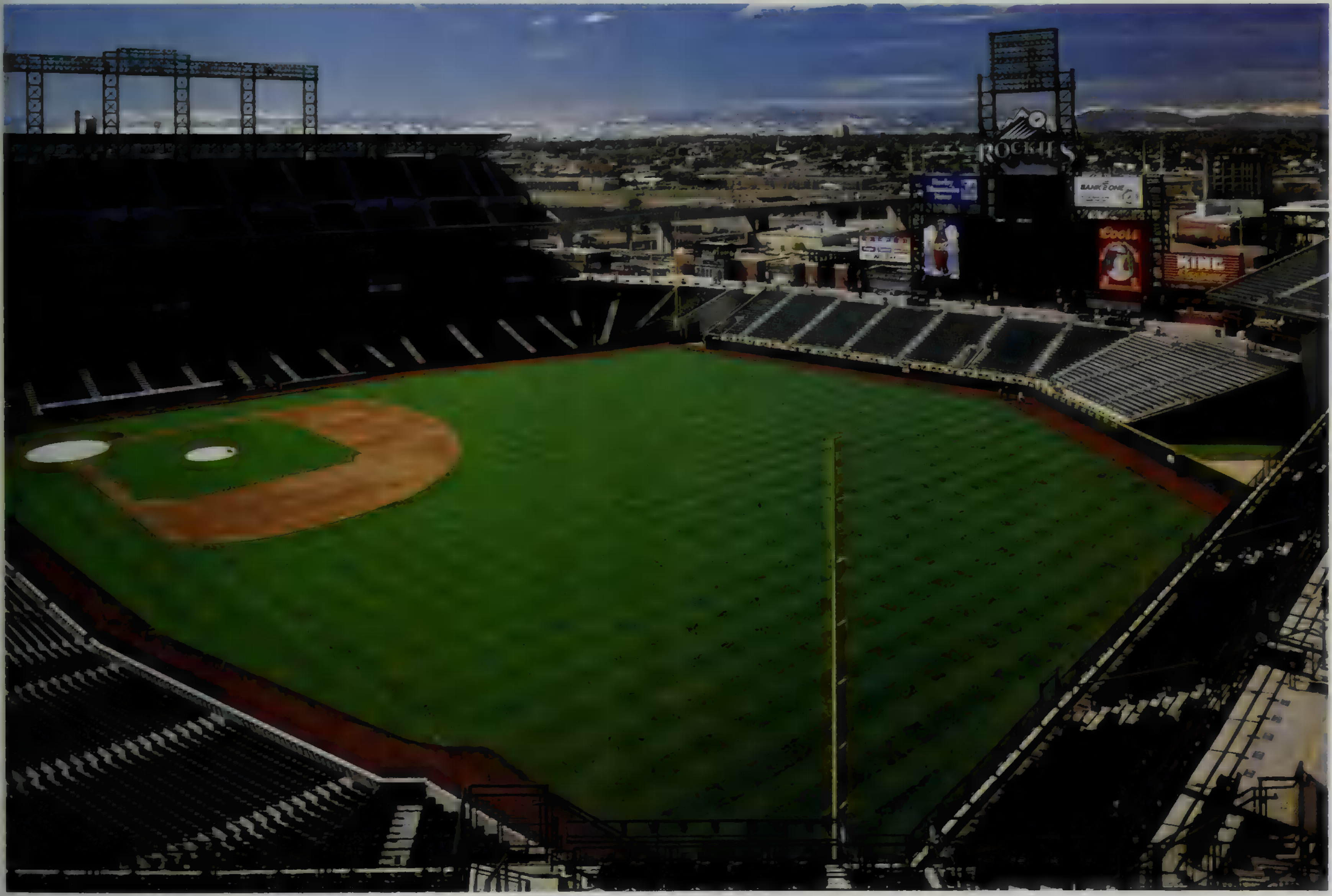




region. The supply of nearby structures, which had fallen into disuse with the decline of the railroads, is extensive and ready-made for redevelopment. In fact, brew pubs, restaurants, loft housing, and other ventures are in development there, and property values are said to be rising.

The location of the park was also strategic, in that major highways, streets, municipal bus lines, and bike paths already led to the area, although there is little parking on the actual site—most is "borrowed" from existing parking in upper downtown a few blocks away. Fans walk or use alternative means of transportation to get to the game—according to the architects, during a Memorial Day homestand this year, Rockies' management expressed concern at the lack of public locker space for roller blades, wondering if this new type of fan amenity should be offered.

No doubt part of Coors' successful replication of early ballpark imagery is due to its low scale, deliberately designed not to overpower the surrounding buildings. The stadium was kept within the confines of a city block and, like other buildings in urban settings where land is valuable, no square foot is wasted: the building reaches right out to its minimal street setbacks. Besides scale and siting, a contextually appropriate mix of materials and detailing completes the retro-message: corbelled, diagonal Flemish-bond brick on sandstone plinths. These are trimmed with Colorado's state flower, the columbine, in hand-sculpted terra cotta. Exposed, painted structural steel supports con-

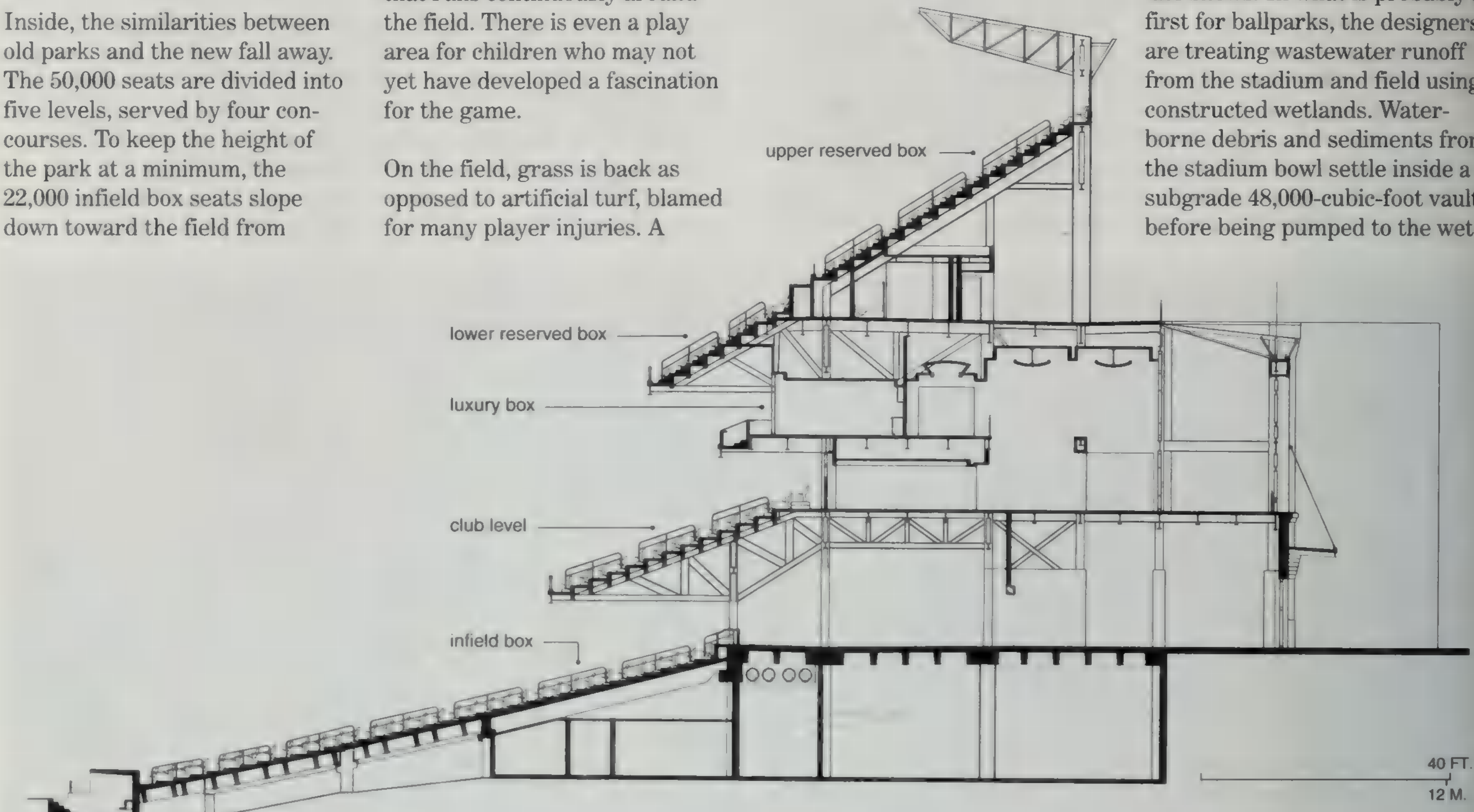


The main and side entrances to Coors Field show (opposite top photos) how HOK Sport has integrated materials and traditional patterns to create the feel of an old-time ballpark. Inside, the facility has all of the modern amenities (above). Sited on the old Union Pacific yards,(opposite) the ball park is woven into existing traffic patterns, and has brought new life into Denver's lower downtown.

courses, canopies, and lighting towers. The main entrance is topped by the Bulova clock often seen in old parks.

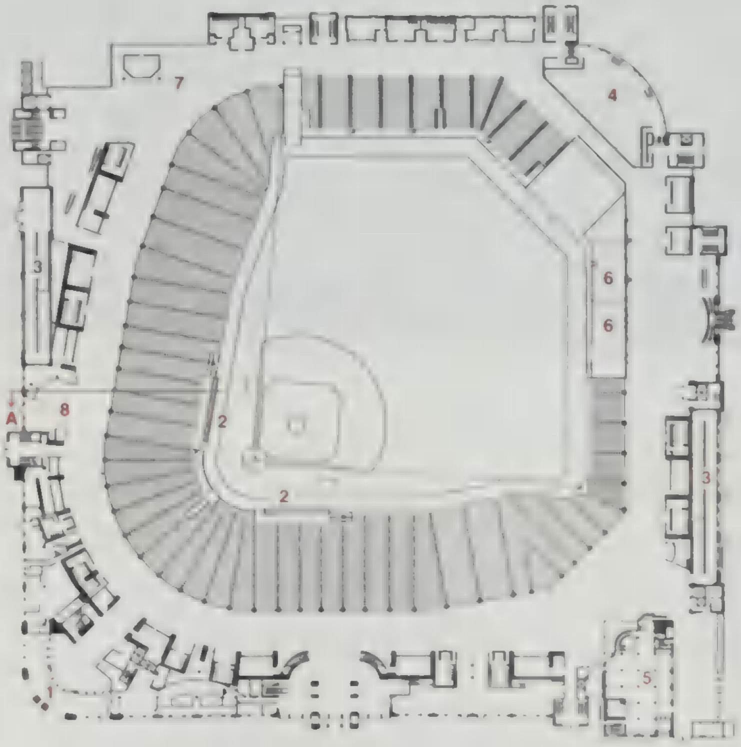
Inside, the similarities between old parks and the new fall away. The 50,000 seats are divided into five levels, served by four concourses. To keep the height of the park at a minimum, the 22,000 infield box seats slope down toward the field from street level almost two full stories. Besides Chicago's new Comisky Park, Coors Field is the only park which has a concourse that runs continuously around the field. There is even a play area for children who may not yet have developed a fascination for the game.

On the field, grass is back as opposed to artificial turf, blamed for many player injuries. A groundkeeper's dream come true, 46 miles of heating coils at a comfy 58-degrees F. give the turf a head start in spring and melt late snows. In what is probably a first for ballparks, the designers are treating wastewater runoff from the stadium and field using constructed wetlands. Waterborne debris and sediments from the stadium bowl settle inside a subgrade 48,000-cubic-foot vault before being pumped to the wet-



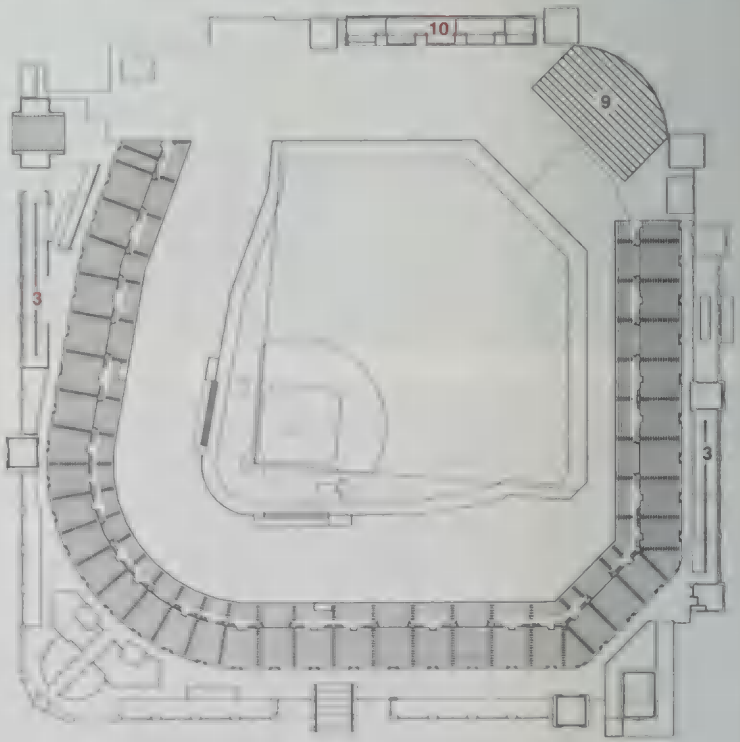
SECTION "A" AT VISITORS DUGOUT

1. *Home-plate entry*
2. *Dugouts*
3. *Ramps*
4. *Picnic area*
5. *Brew pub*
6. *Bullpens*
7. *Kid's play area*
8. *Food court*
9. *Bleachers*
10. *Scoreboard*



MAIN CONCOURSE LEVEL

N 120 FT



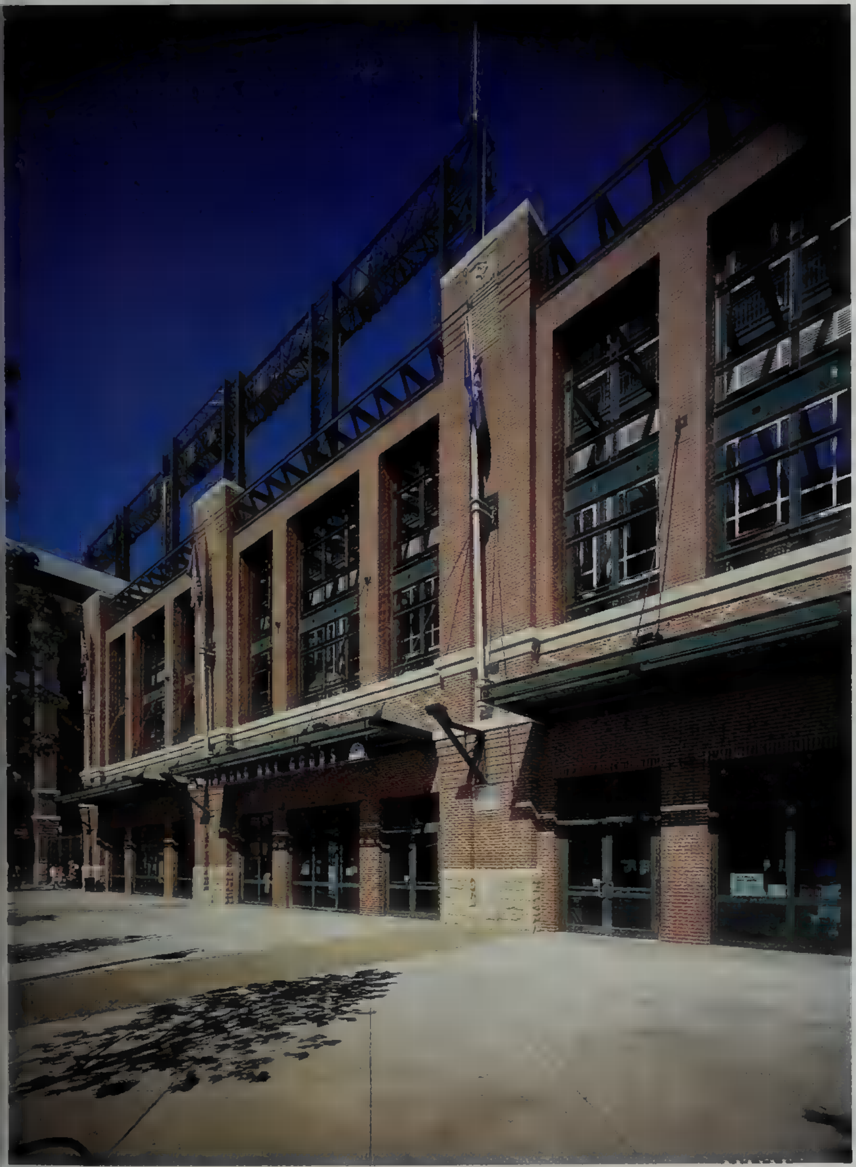
UPPER SEATING LEVEL

lands, a sequence of six ponds that are planted with specific flora to purify the water. Storm runoff from the parking lot drains directly to the constructed wetlands.

Even though players have to hit a ball 423 feet to reach the fence at its farthest point—farther than at any park in the majors—some fans complain that Coors Field is ruining the game on account of the extraordinary number of home runs hit here: fly balls travel far and fast in the mile-high atmosphere. *C.D.L.*

Credits

Coors Field
Denver, Colorado
Owner: *Denver Metropolitan Major League Baseball Stadium District*
Architect: *HOK Sport—Ray Chandler, principal-in-charge; Joe Spear, design principal; Bradd Crowley, project manager; Brad Schrock, senior designer; Bruce Marshall, project architect; Craig Meyer, planning coordinator*
Consultants: *Martin/Martin Consulting Engineers (structural); M•E Engineers (M/E/P); J.F. Sato and Associates (civil and water resources); EDAW/HRV (landscape); Grenald Associates (lighting)*



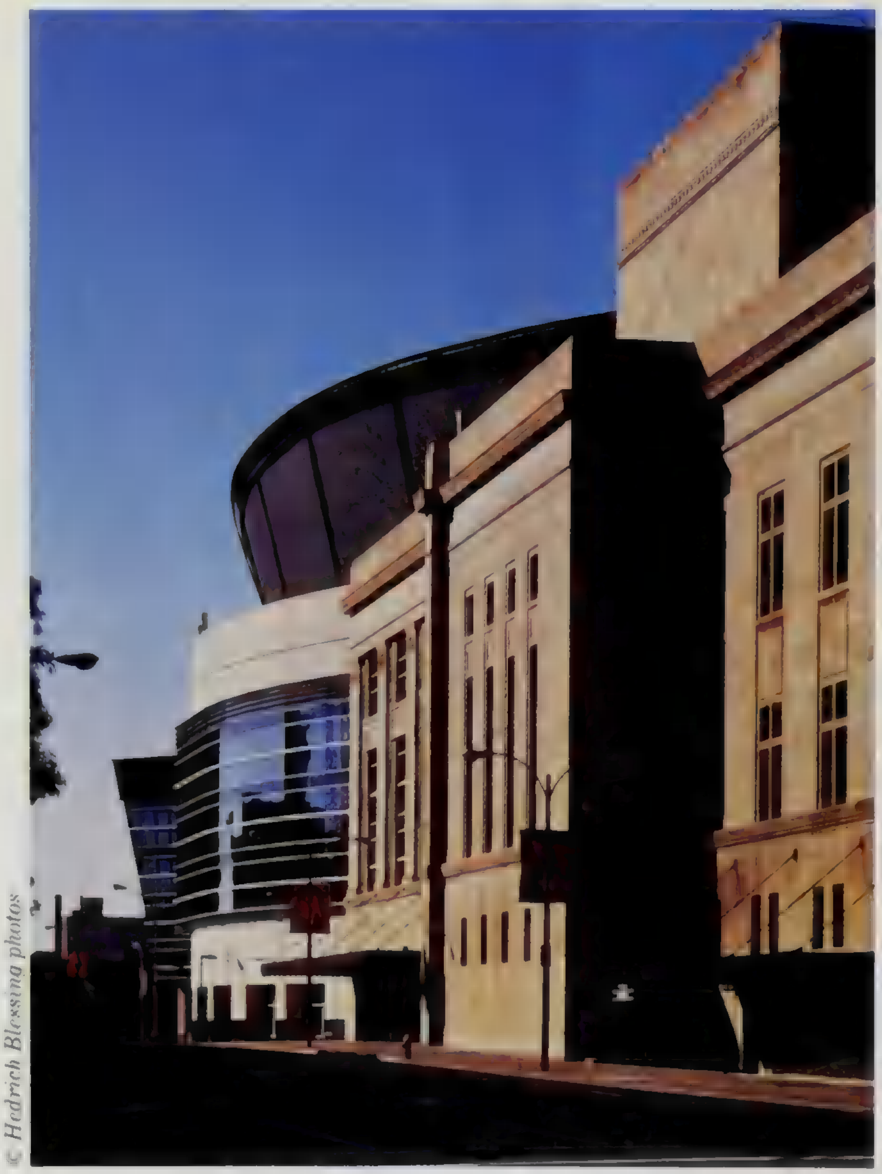
©Bob Greenspan interior photos

Retail shops and restaurants on the ground floor of the stadium's street side (above) attract fans on game days, but more important is the foot traffic they may generate when there is no game. This effort shows how an athletic venue can contribute to the overall economic health of a neighborhood. The on-site sports bars and restaurants continue the ballpark's old-time theme.

Kiel Center Arena

St. Louis, Missouri
Ellerbe Becket, Inc., Architects

Publicly financed arenas and stadiums are increasingly sold to skeptical voters as catalysts for luring people into urban centers. Thus, like many of the sports facilities that Ellerbe Becket designs these days, the Kiel Center Arena is not located on the open urban fringes, as such structures usually were 20 years ago, but right downtown in St. Louis, where it shares its site with another civic attraction, the Neoclassical 1930s Kiel Opera House. That the two structures bear little resemblance is no accident. "It was the reason we won the city's design competition," says Thom Greving, Ellerbe Becket's senior designer on the arena. Sweeping lines express new times and uses—not to be confused with the sedate role of the opera fronting north onto a new "culture mall." Still, the two are oddly compatible (below).



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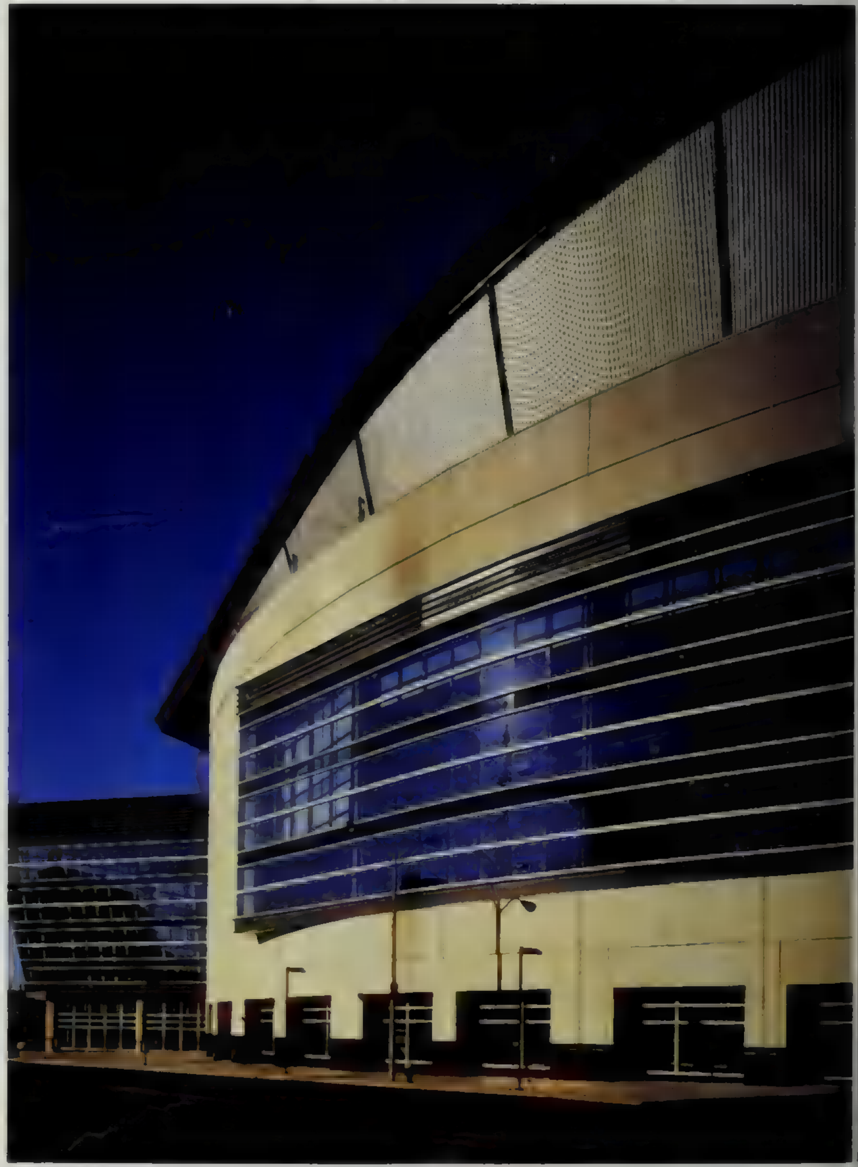
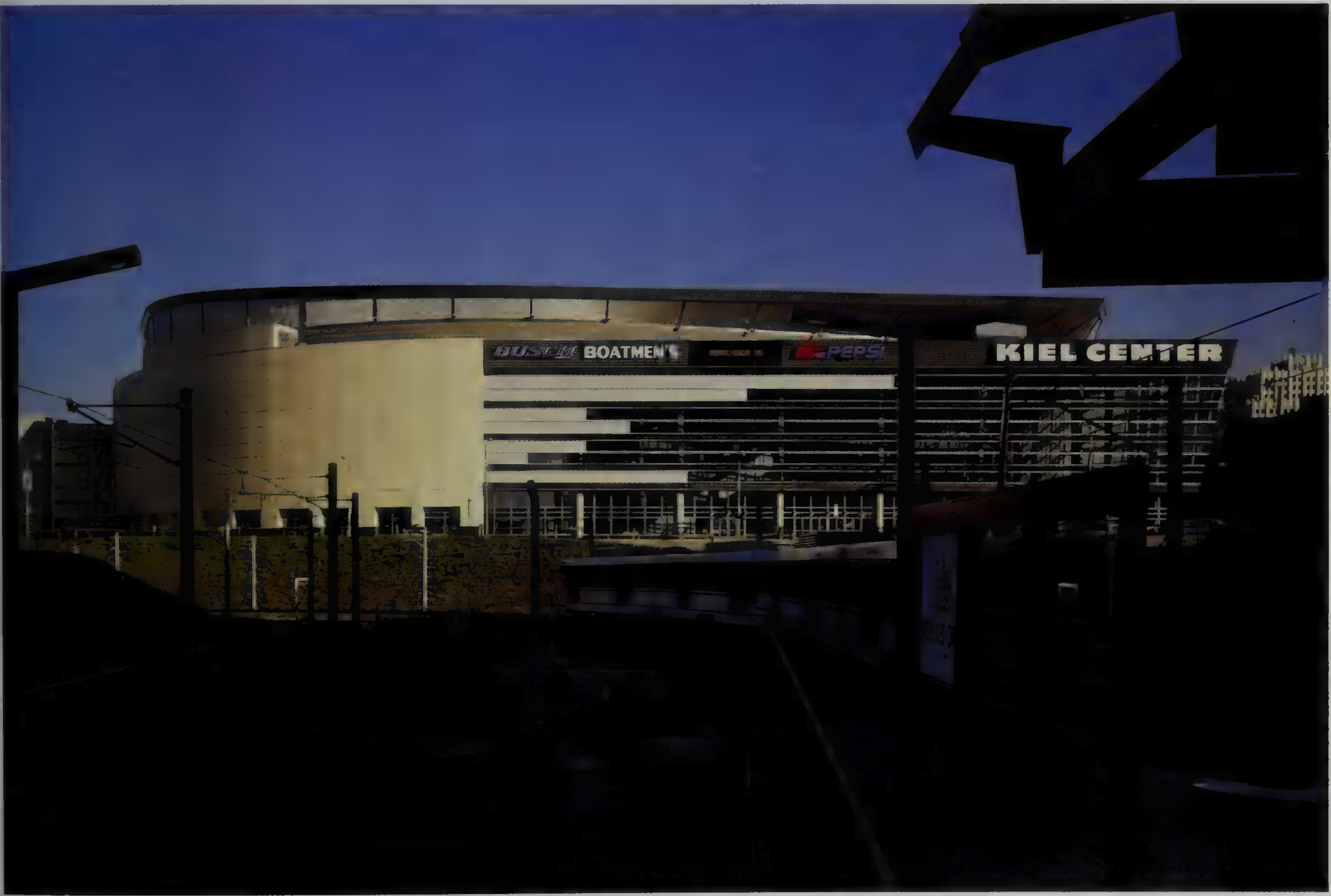
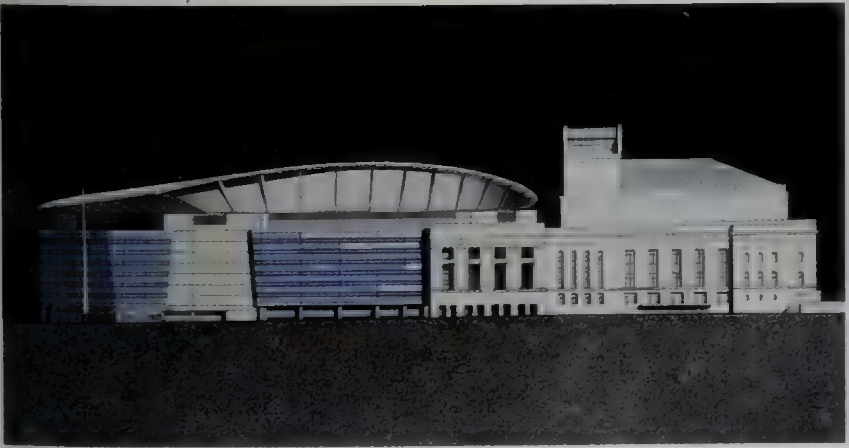


Kiel Center Arena typifies new sports facilities in more ways than its urban location. Unlike single-user structures of yore, the arena accommodates several activities so it is seldom idle. Initiated as the new home of the ice-hockey team, St. Louis Blues, its 650,000 square feet also house the St. Louis University basketball team and numerous concerts. A variable-width playing floor holds 20,000 seats for hockey and 21,000 for other events. At the ends of the arena, 1,500 seats are raised electronically during hockey games for views over the dasher boards.

Owners Kiel Partners, a consortium of some 40 local corporations, counters usual arguments against bringing large numbers of cars downtown with a 1,240-car garage to park them plus access to a rapid-transit system. Like many new arena owners eager for income, Kiel Partners sell season boxes—some 83 of them holding up to 730 spectators—that resemble hotel suites complete with bars and TVs. A restaurant seating 450 also overlooks the action. Not everyone is happy with this configuration. "The socially segregated Kiel Profit Center short-circuits ice hockey's electrical charge between fans and players," bemoans *St. Louis Post Dispatch* sportswriter Paul Lore.

With investors wanting quick returns, Kiel Center Arena's design and construction period was less than 22 months. Typical design-construction periods for a spectator-sports facility this size are two to eight months longer, notes Ellerbe Becket's project manager Joe Diesko—still brief periods compared to other types



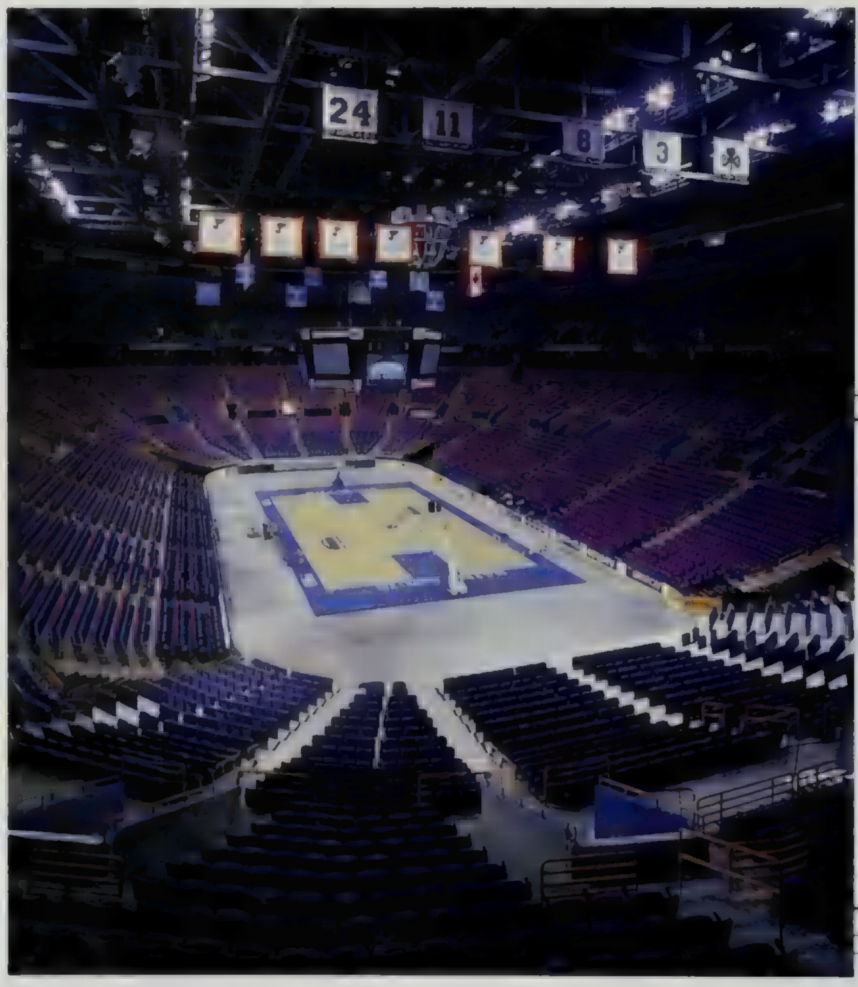


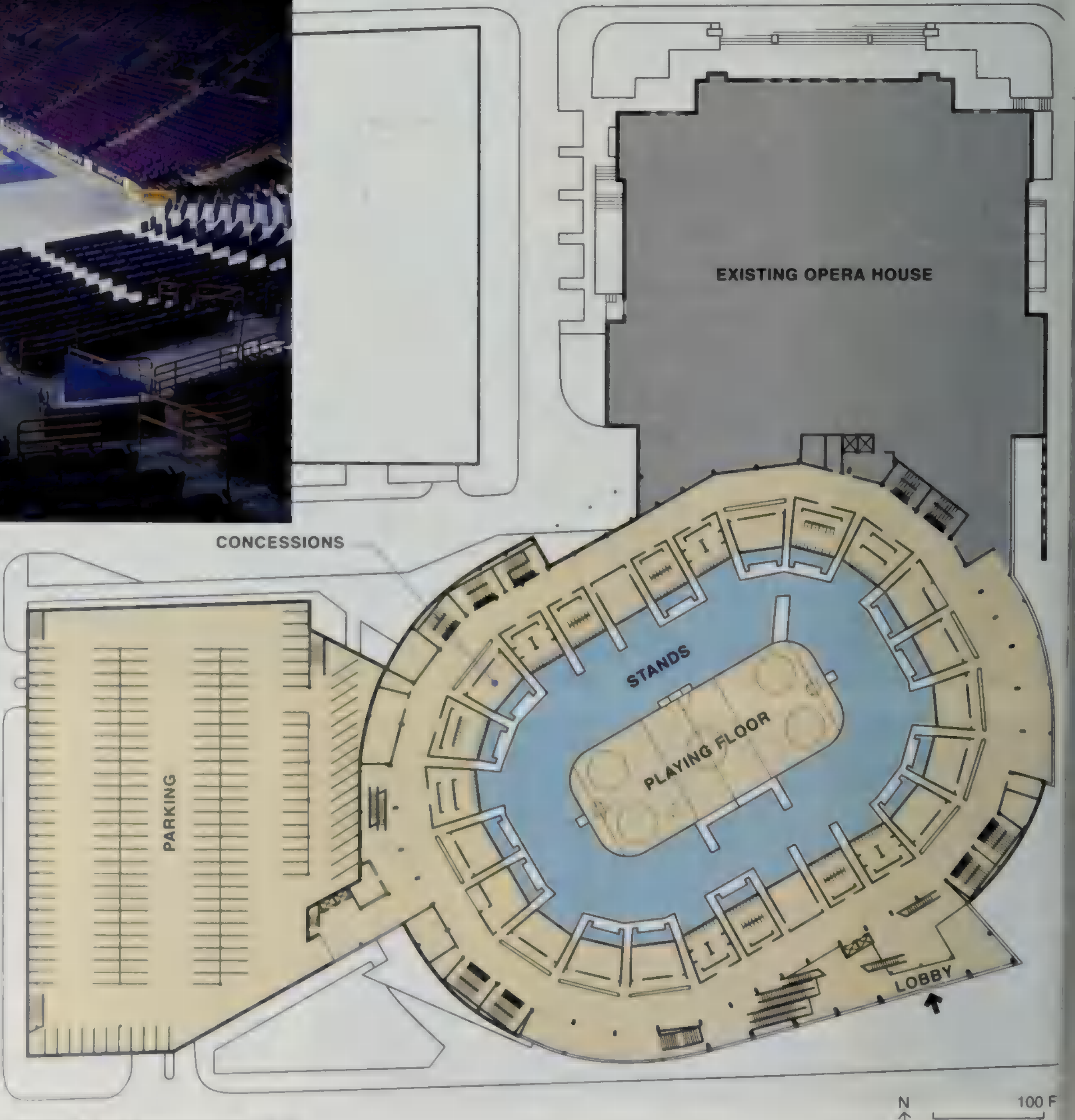
To mesh two very different buildings (and resolve a potentially awkward juncture), the architects removed the granite rear wall of the 1930s opera house, numbered the stones, and reassembled them in their original relationship to form an overlapping screen in front of the new curved glass wall of the arena. Now the arena seems to emerge from the older structure.

of construction. And, Kiel went up during the rainiest summer in a century, a flood, and the discovery of a steeply sloping rock shelf under the site. Despite these conditions, J. S. Alberici Construction Company—which had guaranteed a maximum price of $128 per square foot when contract documents were only 60 percent complete—accelerated the required schedule to meet an October start of the hockey season. Construction began around demolition of previous buildings. To keep up with the work, Ellerbe Becket's engineers worked nights approving steel-reinforcement shop drawings of the largely concrete structure, for fabrication and pours the next day. Preassembled steel trusses over the central space were trucked to the site at dawn to beat rush-hour traffic. The pay-off: Shortly before the opening, the NHL went on a strike that lasted until the following January. *Charles K. Hoyt*

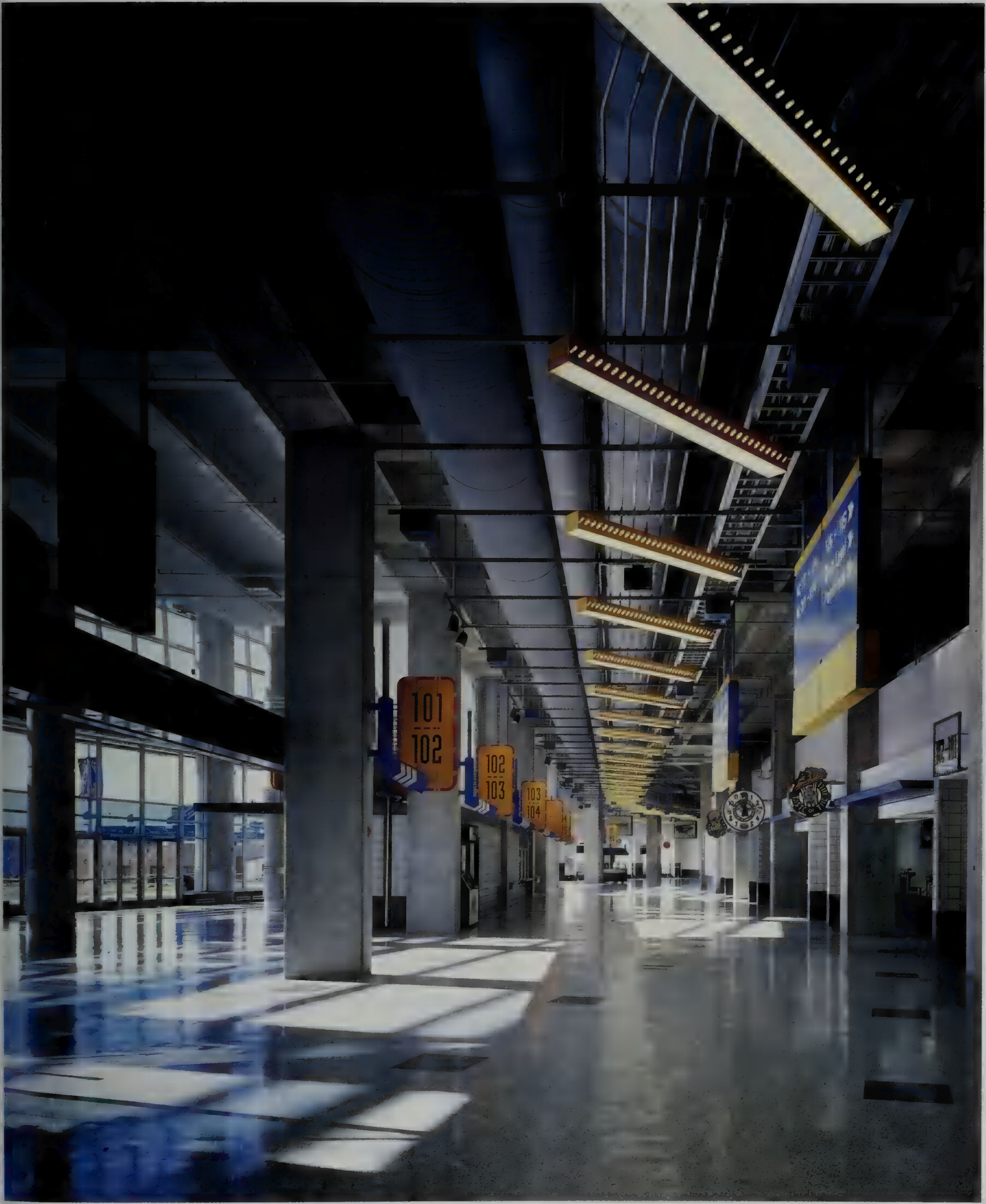
Credits

Kiel Center Arena
St. Louis, Missouri
Architect: *Ellerbe Becket, Inc.—Joe Diesko, project manager; Dan Sullivan, Bill Bassett, project architects; Thom Greving, Randy Bredar, project designers; Gary Storm, structural engineer; Jim Lee, construction administrator; Gordon Wood, technical advisor*
Engineers: *Kennedy Associates/William Tao & Associates (M/E/P)*
Consultants: *Kiku Obata & Company (graphics, signage); Interior Space, Inc. (food service); By Design, Inc. (suites)*
General Contractor: *J. S. Alberici Construction Company*





LOWER CONCOURSE SITE PLAN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Manufacturers' Sources

For your convenience in locating building materials and other products shown in this month's feature articles, RECORD has asked the architects to identify the products specified.

Pages 80-87
Museum of Contemporary Art, Chicago
Josef P. Kleihues, Inc., Architect
A. Epstein and Sons, International, Associate Architects
Indiana Limestone cladding: Spectrum Stone. Cast-aluminum panels: Kessler Enterprises. Curtainwall, skylights, and entrances: Harmon Contract. Pyramid skylights: Imperial Glass Structures. Aluminum framed windows: Wausau Metals. Translucent vaults (galleries): Laminated glass. Lobby floor: Impala Black Granite. Painted-steel railings: fabricated by Waukegan Steel. Interior wood doors: Algoma Hardwoods, Inc. Locksets: Sargent. Hollow-metal doors: Build Rite. Solar-control louvers: Solonia GmbH. Elevators: Otis. Public-area seating: Knoll. Sconces (at stair): Se'Lux (Sawtooth fixture designed by Josef P. Kleihues). Recessed downlights: Edison Price. Exterior bollards and step lights: BEGA.

Pages 88-93
Museum of Contemporary Art, San Diego
Venturi, Scott Brown & Associates, Architect
Exterior custom-color coating on cement plaster: Thoro System Products (Thoroseal). Aluminum-framed windows and entrances: Custom, fabricated by Tower Glass. Low-E coated laminated glass: Viracon. Wood-framed windows and interior doors: Montbleau Joinery. Neon signage: California Neon. Metal-mesh railing infill: Legi. Quarry tile (cafe): American Olean. Seating: KI. Paints: Frazee. Spot-light fixtures: refurbished existing. Lobby downlighting: Lightolier, Inc.

Pages 94-101
Skirball Cultural Center, Los Angeles
Moshe Safdie and Associates, Architect
Albert C. Martin and Associates, Associate Architect
Masonry cladding: Tadoussac. Stainless-steel roofing: Atlas. Liquid-membrane roofing: American Hydrotech, Inc. Aluminum-framed windows and entrances: Kawneer Co., Inc. Glazing: Viracon. Locksets: Yale. Hinges: Hager. Closers; Norton. Exits: Adams-Rite. Acoustic ceilings: Armstrong World Industries (Cirrus). Drywall and veneer plaster: USG Corp. Chinese slate flooring: Eurocal. Carpeting: Bentley; Masland. Elevators: Fujitec.

Pages 102-107
Sto AG Regional Depot, Hamburg, Germany
Michael Wilford and Partners, Architect
Insulated panel cladding: StoTherm (Panel 2000). Sheet-metal roofing: Alcan Aluminum. Windows: Hartmann. Glazing: Flachglas. Entrances and doors: Mannesmann. Locksets: FSB. Rubber flooring: Freudenberg (Norament). Acoustic ceiling treatment: Sto Silent. Tile surfaces: Villeroy + Boch. Tables and office furnishings: Voko. Interior lighting: BEGA; DZ Licht; Poulsen Lighting; Gozzini. Interior coatings: Sto (Decolit; Sto-Pox; Sto Top). Exterior lighting: BEGA.

Pages 110-113
Coors Field, Denver
HOK Sport, Architect
Curtain wall, windows, and entrance: Kawneer Co., Inc. Paints: Sherwin Williams. Resilient flooring: Gerbert; Armstrong World Industries. Delicatessen floor: American Olean. Laminate surfaces: Nevamar. Downlighting: Edison Price; George Kovacs. Ambient fixtures: Visa Lighting; Winona. Exterior lighting: Kim Lighting. Pole-top luminaires: Poulsen Lighting, Inc. Elevators: Montgomery. Stadium seating: Hussey Seating Co.

Pages 114-117
Kiel Center Arena, St. Louis
Ellerbe Becket, Inc. Architect
Curtain wall, windows, and entrances: Cupples Products, Inc. Single-ply roofing: Sarnafil, Inc. Sports-lighting fixtures: Sterner Lighting Systems, Inc. Cast-terrazzo flooring: Fritz Industries, Inc. (Fritztile). ■

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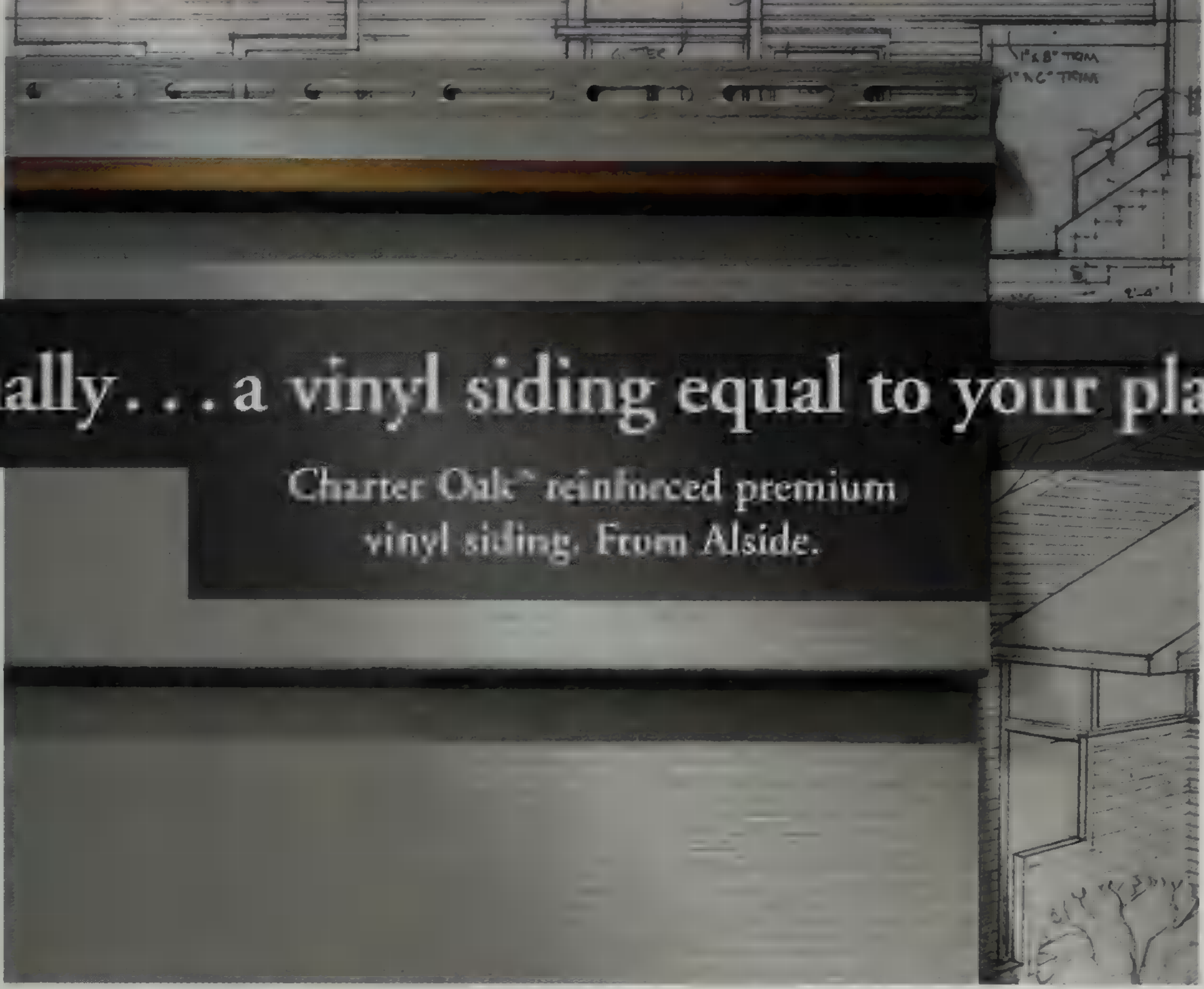

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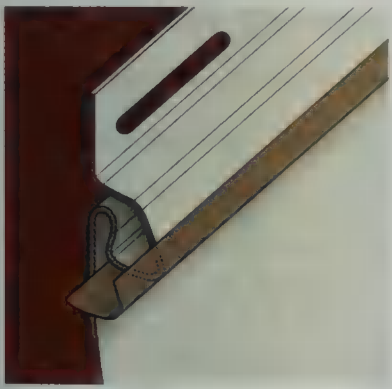

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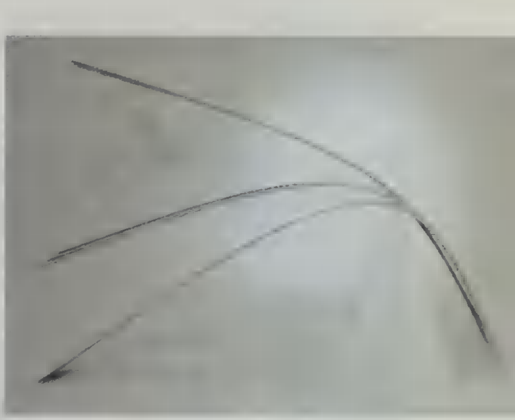

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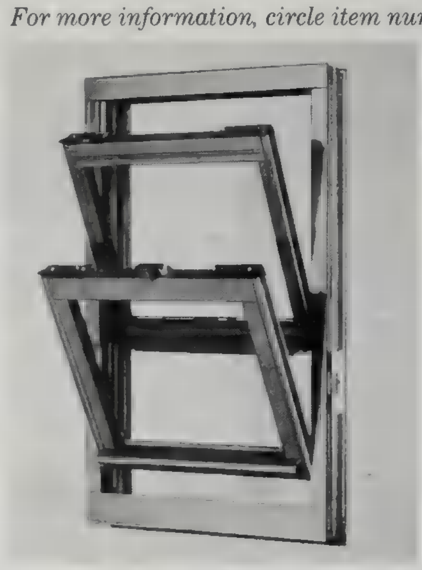
204. Updated thermal window
Wausau Metals is offering a redesigned version of the 2250 Series aluminum-frame architectural window, one that reduces some of the production costs while improving the sight-line profile and upgrading the unit's thermal performance. The simplified, more-economical model has 2-in.-wide muntins, and can be ordered as a fixed, projected, or casement window style. Solar-control options include between-glass blinds, as shown above, and a range of thermally selective, low-E glazings. 715/845-4055. Wausau Metals, Wausau, Wis.

205. Pre-punched steel stud
A non-load-bearing configuration of the Carpenter's Steel Stud is said to offer significant savings and more-consistent quality than wood studs, especially in the increasingly popular 9- and 10-ft lengths required for higher ceilings. Members are intended to be used just like wood, with flanges on the end that allow easy nailing to wood plates with standard tools. Holes are pre-punched for wiring and plumbing; studs meet ASTM and AISI standards and all building codes. 800/457-8837. HL Stud Corp., Columbus, Ohio.



206. Aluminum double-hung
The 1300 double-hung window, with many applications in multifamily construction, now offers enhanced design and hardware options. Sight lines are narrower, with a larger glass-to-frame ratio; a "hospital-style" sill allows ventilation without a draft. Tilt latches or locks can be specified in Lexan, nylon, or zinc-plated metal; glazing can be a 7/8-in. insulating light or 1/4-in. single-pane. Historic muntin grids can be specified for renovation windows. Meets all AAMA, federal, and state energy standards. 516/231-0800. Mannix, Brentwood, N.Y.

207. Light-gauge steel truss
Made under license from MiTek Industries, St. Louis, by fabricators who can customize each assembly to specific structural and architectural requirements, the Ultra-Span roof truss comes to the job site ready to place. Lighter in weight than other steel-truss systems, the Ultra-Span is said to be as easy to use as wood members, and to be able to meet new, more restrictive fire codes. 800/339-0716. Wood Structures, Inc., Biddeford, Maine.

Continued on page 126

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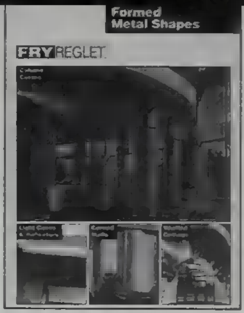
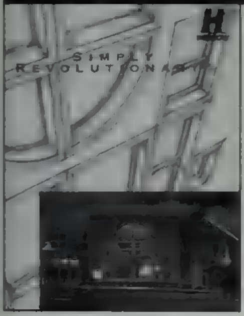
Product Literature

20[illegible]. Architectural wood doors
An eight-page catalog illustrates VT's all-wood, door-edge treatment: a 1/4-in.-thick stile surface is applied so no white cross-section lines are visible. A selection chart displays core, stile, and finish options with sound-attenuation and other performance data. Also includes laminate and impact-resistant doors. 800/827-1615. VT Industries, Inc., Holstein, Iowa.



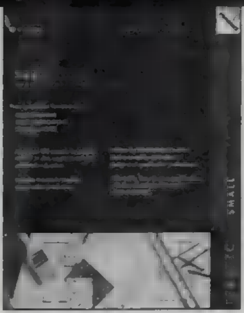
209. Formed metal shapes
A new business, Fry's Formed Metal Shapes unit will use 40 years of architectural metal-working experience to create custom column covers, light coves, large-radius curved metal walls, and vaulted ceilings in almost any metal and finish option. An eight-page brochure illustrates the design range anticipated. 800/237-9773. Fry Reglet, Alhambra, Calif.



210. Multiple-option windows
An 18-page catalog demonstrates many of the style, color, hardware, and wood-specie choices available in high-performance, wood-frame/aluminum-clad windows. Developed in Scandinavia for the severe weather of Northern Europe, the system offers architectural solutions to glazing problems. 800/843-4929. H Window Co., Monticello, Minn.

211. Easy-open entrance
A new catalog explains how the Balanced Door meets minimum ADA specs without needing power door operators. Includes photos of several styles: formed stainless-steel and bronze doors; extruded-aluminum entrances; and narrow-stile tempered-glass designs. Binder and video also offered. 716/665-6522. Ellison Bronze, Falconer, N.Y.

212. Commercial roofing
A 50-page manual, *Commercial Roofing Specifications and Details*, covers updated material on polyester and fiberglass-reinforced, SBS-modified bitumen systems, and also highlights Heritage architectural-style residential roofing shingles. Explains how TAM-CADD electronic roof-specification works. 800/641-4691. TAMKO Roofing Products, Inc., Joplin, Mo.



213. Masterspec on disk
The new owners of Masterspec offer print-format and electronic tools for specific design-office needs. Flyers explain *SmallProject*, simplified short-form specs for lower-budget projects, and *Masterworks* and *LincSpec*, software that can do complex editing tasks on many documents at once. 801/521-9162. ARCOM Master Systems, Salt Lake City. ■

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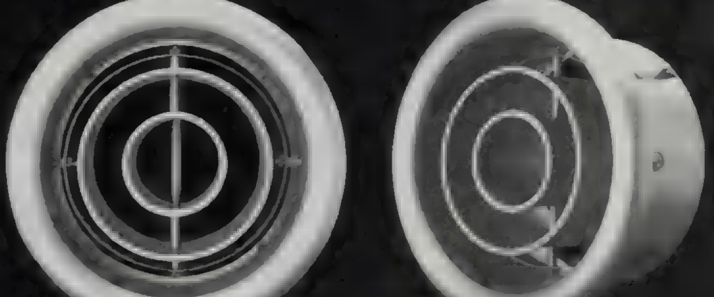

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Corrections and Clarifications

◆ To receive an on-line summary of current articles on sustainable design, you don't need a subscription to America Online, as mistakenly stated in ARCHITECTURAL RECORD, Short Takes, January 1996, page 23.

◆ The first name of Gordon Chung of the California Council was printed as George in error [RECORD, February 1996, page 33].

◆ Peter Mance should have been credited as the photographer of the Queen Elizabeth 2 [RECORD, February 1996, page 99].

◆ In "Balancing the Equation," [RECORD, March 1996, page 25], the phone number at the AIA for information on developing family-leave policies should have been: 202/626-7482. Also, the line about enforcement of the Family Medical Leave Act was inadvertently deleted. FMLA complaints are filed with the Department of Labor's Employment Standards Administration.

◆ The photographer for the Declaration of Independence exhibit [RECORD LIGHTING, May 1996, page 9] was Craig Blackmon.

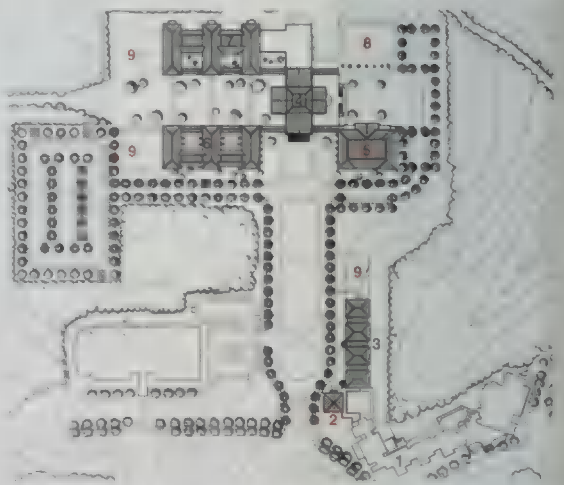
◆ The project team credit list for Tsao McKown's Suntec City project [RECORD, May 1996, page 94] should have included Mark Brandli and Claudia Russell.

◆ The credits for "The Original Levi's Store" [RECORD, May 1996, page 107] misspelled the name of project manager Daniel Broggi.

◆ Ali Zanjani of American Personal Communications is the owner of Sprint Spectrum store at Tyson's Corner, Va., by CORE architects [RECORD, May 1996, pages 110-111]; Enterprise Woodcraft & Design designed the fixtures.

UVA Business School Correction

◆ The site plan for the University of Virginia business school [RECORD, July 1996, page 74] was missing the legend numbers below.



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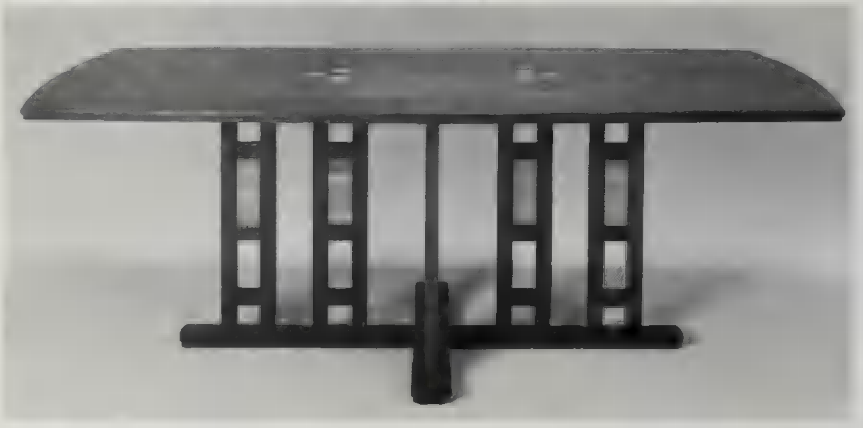
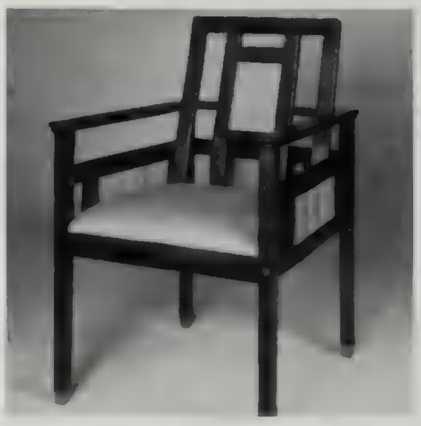
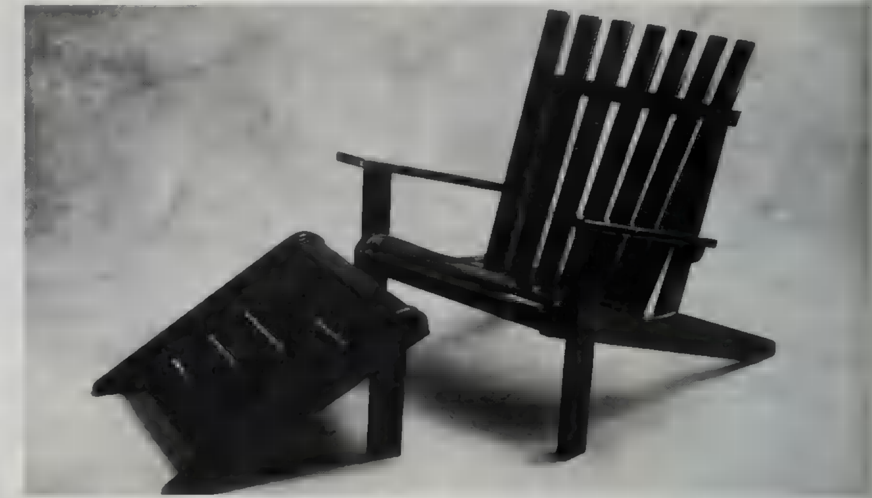
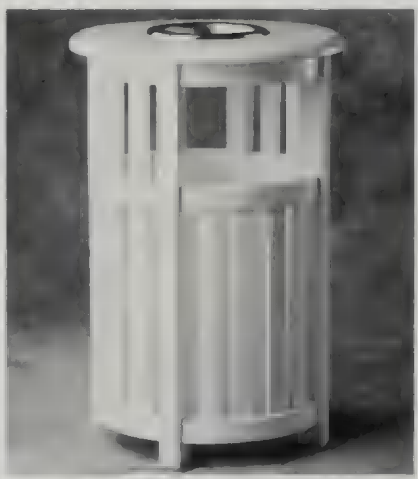


214. Resort furniture

The inventor of a rugged and often-specified "market" umbrella, Mark Singer has designed a new furniture collection, 10 pieces in all, which can be customized to meet the appearance, finish, and site requirements of either interior or exterior spaces in contract applications such as hotels. Made of plantation-grown Indonesian Eco-Teak, Azia tables and chairs feature removable panels (of cane, hammered copper, and slate for outdoor settings, or upholstered in fabric or leather for indoor use), a decorative option that allows the basic piece to coordinate with different interior-design styles such as southwestern or African. A color catalog illustrates furniture in private homes as well as country club, hotel, and resort settings. 805/965-6535. Giati Designs, Inc., Santa Barbara, Calif.







215. New take on a classic

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Agenda *continued from page 36*

cultural planners where once they had social workers," comments Scott Brown.

Also, blockbuster museum shows "have become a powerhouse" for cities, she says, promoted not only by the institutions themselves (Chicago's just-opened Museum of Contemporary Art—page 80—is running advertisements in *The New York Times*), but through media coverage and discount packages offered by travel agencies and hotels. Indeed, the impetus to keep visitors in town is behind a master plan the firm is preparing for Independence Mall, the bleak expanse that fronts the venerable Independence Hall in Philadelphia (page 34).

Expanding today's limited vision

The Mall project is typical of another trend: the increasing participation of charitable foundations. With the National Park Service (which operates Independence Hall) strapped for funds, the Philadelphia-based Pew Charitable Trusts stepped in. "Our board is very concerned with what it can do to help stabilize the economic base in this region," explains Keith McKeown, spokesman for the Trusts. "One of the things missing here is an entity to market Philadelphia as a destination for tourists."

Other foundations also seed urban redevelopment through grants. The Lila Wallace-Reader's Digest Fund has an Urban Parks Initiative operating in 11 cities; the Stanton Trust has underwritten planning in Denver. But don't expect foundations to pick up where government leaves off, McKeown cautions. Pew's role, he says, "is as a somewhat neutral organization that can convene and provide common ground for stakeholders."

While architects can offer stirring visions, there are all too real limitations on what can be done. Says ULI's Black, "Basic economics are a problem once you get away from better locations in downtowns that can command high re-use values." He says it is particularly difficult to redevelop the kinds of obsolete industrial areas that are surrounded by low-income neighborhoods containing low-quality housing stock. "Cleveland, Detroit, St. Louis, and probably another 20 to 30 old industrial cities really have their hands full," he explains, "because you have a situation where the re-use value of redevelopment is substantially less than the cost of redevelopment."

Yet he also says architects who can work well with others have much to contribute. "You need to combine in a planning team the expertise of the private investor, developer, public-infrastructure planner, and somebody who understands the nuances of older structures and what can be done with them. It calls for pretty creative design work to get the maximum out of the system."

Black says that this kind of redevelopment demand can't be met solely by creative use of existing tools. He'd prefer a return to Title 1 subsidies under the federal Housing Act of 1949. The subsidy scheme recognized, "that you might have to invest $10 per sq ft to create a piece of land only worth $1 to $3 per sq ft," but that the advantages of eradicating blight outweighed the cost of the subsidy. Title 1 was frequently abused in its heyday, and there is little sentiment now for reviving it in Congress, but the pendulum could swing. Indeed, Alexander Garvin's *The American City: What Works, What Doesn't* (New York: McGraw-Hill, 1996) has met an unusually warm reception considering that many of its success stories happened during the era of traditional government urban renewal.
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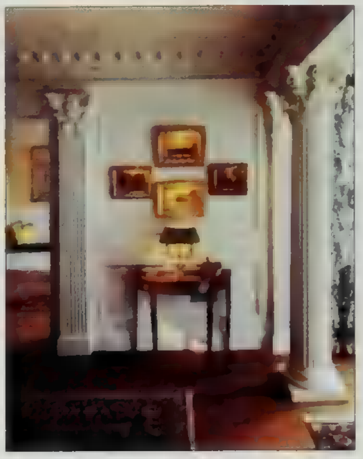

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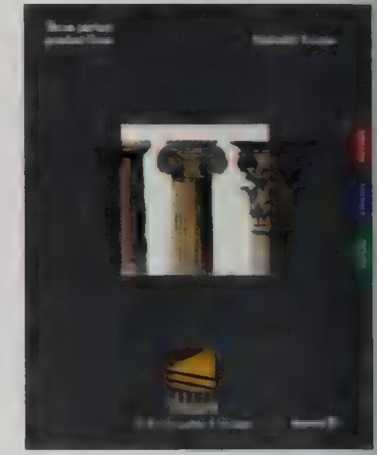

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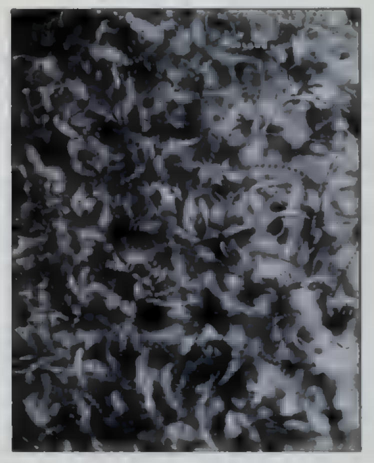

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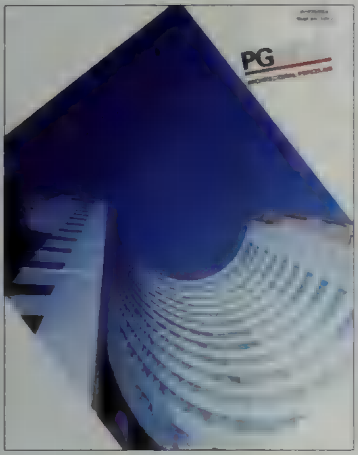

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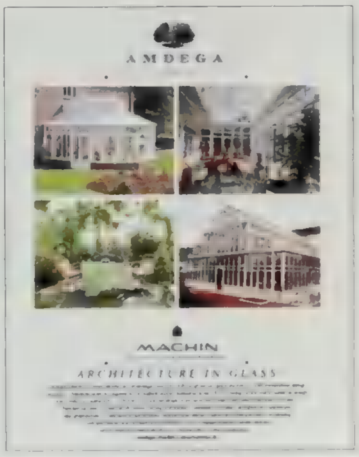

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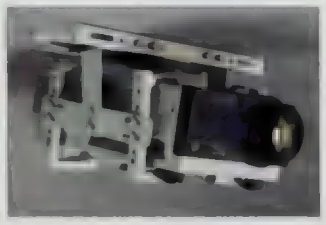

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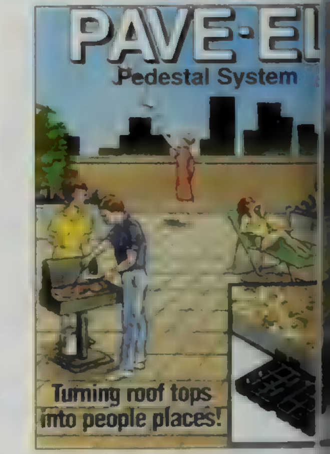

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AIA/Architectural Record Continuing Education

Use the following learning objectives to focus your study. After reading the article, "Overcoming Pitfalls in Product Literature" (page 50), complete the questions and check your answers (page 137). AIA members may fill out the self-report form and send it in to receive two learning units.

Mark Scher
AIA Director, Continuing Education Programs and Products

Learning Objectives:

After reading the story and completing the exercise below, you will be able to:

- ◆ Identify at least five possible indicators of inaccuracies or irregularities in technical literature that affect product evaluation, and you will learn what appropriate recourse is available.
- ◆ Delineate three ways computers may help improve product evaluation.
- ◆ Outline a product investigation strategy that accounts for problem warning signals, systems compatibilities, and when to use consultants.

QUESTIONS

1 List 5 areas that may signal problems with specifying a product.

Answer: 1. ______
2. ______
3. ______
4. ______
5. ______

2. A building product manufacturer's representative mentions that his product uses a "surgistic adhesive binder." How does the article recommend responding?

Answer: ______

3. Why should an architect want accelerated aging or volumetric-expansion data about a product that meets code requirements?

Answer: ______

4. Despite reports of an independent testing lab and prestigious product endorsements, your findings of fault in a product fail to "interest" the manufacturer. Whom can you contact that has authority to address the problem?

Answer: ______

5. What are three potential benefits database and on-line media offer for improving the process of selecting and specifying products?

Answer: a. ______
b. ______
c. ______

6. Formulate a checklist of product questions from the sidebar story, " 'Red Flags' in Product Data."

Answer: a. ______ **b.** ______
c. ______ **d.** ______
e. ______ **f.** ______

For answers and self-report form, turn to page 137

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AIA/Architectural Record Continuing Education

Continued from page 135

Answers

1. a. Product emphasizes visual characteristics over performance data;
b. Descriptive language is imprecise or informal;
c. Small-print disclaimers or transfer of responsibility;
d. Product literature that distorts or differs from testing-agency evaluation data;
e. Components are modified or added to a system without corresponding technical backup and disclosure.

2. Ask him for specifics; define "surgistic adhesive binder" and the conditions for use.

3. Code requirements do not necessarily address serviceability.

4. Contact Alain Scheer, Division of Service Industry Practices, Federal Trade Commission, Washington, DC 20580.

5. a. Greater accessibility and quantity of test data;
b. Standard formats for improved organization and comparability of product characteristics;
c. Provide forums for sharing information between users and experts.

6. a. Accessibility of product data; (Do research to determine relevant tests.)
b. Long-term serviceability data;
c. The "fit" of standards with the system/product;
d. System component compatibilities;
e. Product-formulation changes;
f. Whether a consultant is needed to interpret physical properties;
g. Getting a product warranty certified for your job;

Self-Report Form below

AIA/CES Self-Report Form (FOR ARCHITECTURAL RECORD USE ONLY)

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LAST NAME FIRST NAME MIDDLE INITIAL OR NAME

AIA ID NUMBER

Program/project title: **Architectural Record: Overcoming Pitfalls in Product Literature, August, 1996**

Completion date: ______ /______ /______
MONTH DAY YEAR

Quality Level (QL) of this program: These articles will give you a total of 2 LUs at Quality Level 1

Quality Level for these articles is 1. (Refer to learning objectives on page 65). **Material resources used:** Journal articles

This program addresses issues concerning the health, safety, or welfare of the public.

I hereby certify that the above information is true and accurate to the best of my knowledge and that I have complied with the AIA Continuing Education Guidelines for the reported period.

SIGNATURE DATE

Send completed form to:

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EASY access

Housing Design Awards

MILLIONS of American families include someone with a disability. Accessible or easily adapted single-family housing is a major concern for these families and for those older Americans who are aging into disability and wish to continue living in their own homes. In response to this concern, the National Easter Seal Society and Century 21 Real Estate Corporation have created the Easy Access Housing Design Awards program.

Undertaken in cooperation with The American Institute of Architects through its AIA Research division, the program seeks to recognize high quality, innovative housing designs which enhance accessibility for the elderly and/or persons with disabilities.

Entries are welcome in all categories of disability (from mental and sensory function impairment to internal body regulation and motor skill difficulties) and in the widest range of behavioral settings (from single room environments to large scale, multi-unit developments). Entries are limited to completed projects; or, if the project has not yet been built, completed through design development with the owner's approval to proceed. The exclusive focus of the "Easy Access" program is on housing.

Entries will be screened by a jury of architects and accessibility specialists, and selected projects will be exhibited at the AIA National Convention in New Orleans in May 1997. Winning entries will also be featured in major home magazines, and the results of the program as a whole will be publicized widely by the National Easter Seal Society, Century 21 Real Estate Corporation, and The American Institute of Architects.

AIA

Century 21

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Submissions are due at AIA national headquarters in Washington, DC on or before November 1, 1996. For further information and an entry form, please contact AIA Research: phone (202) 626 7445, fax (202) 626 7425, or aiar@aia.org (e-mail).

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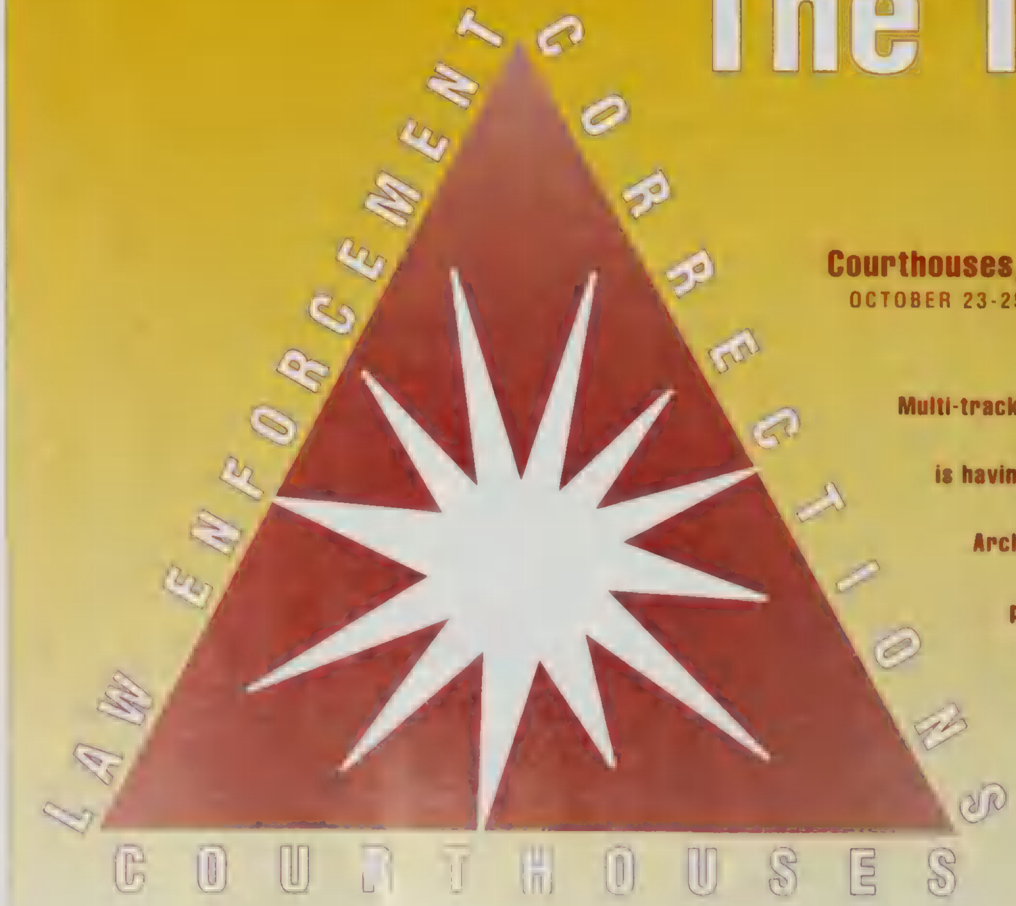

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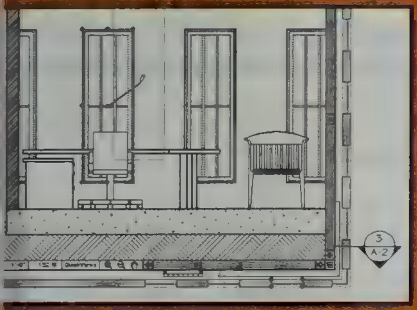

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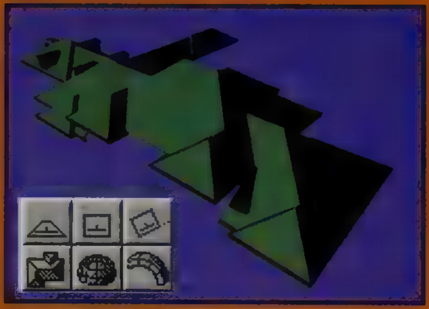

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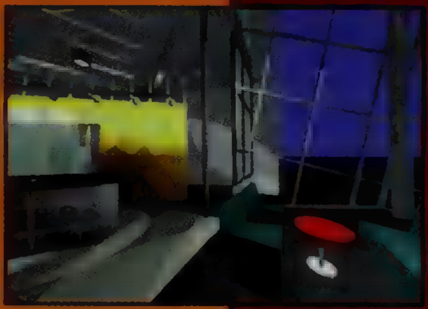

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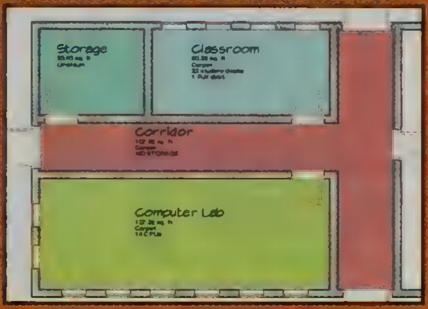

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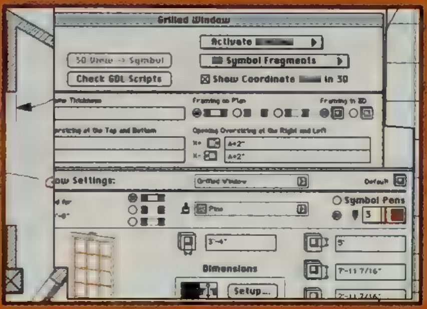

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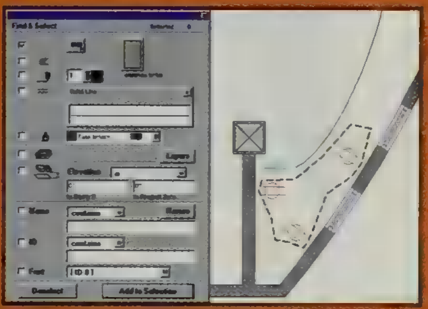

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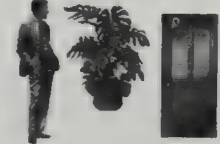

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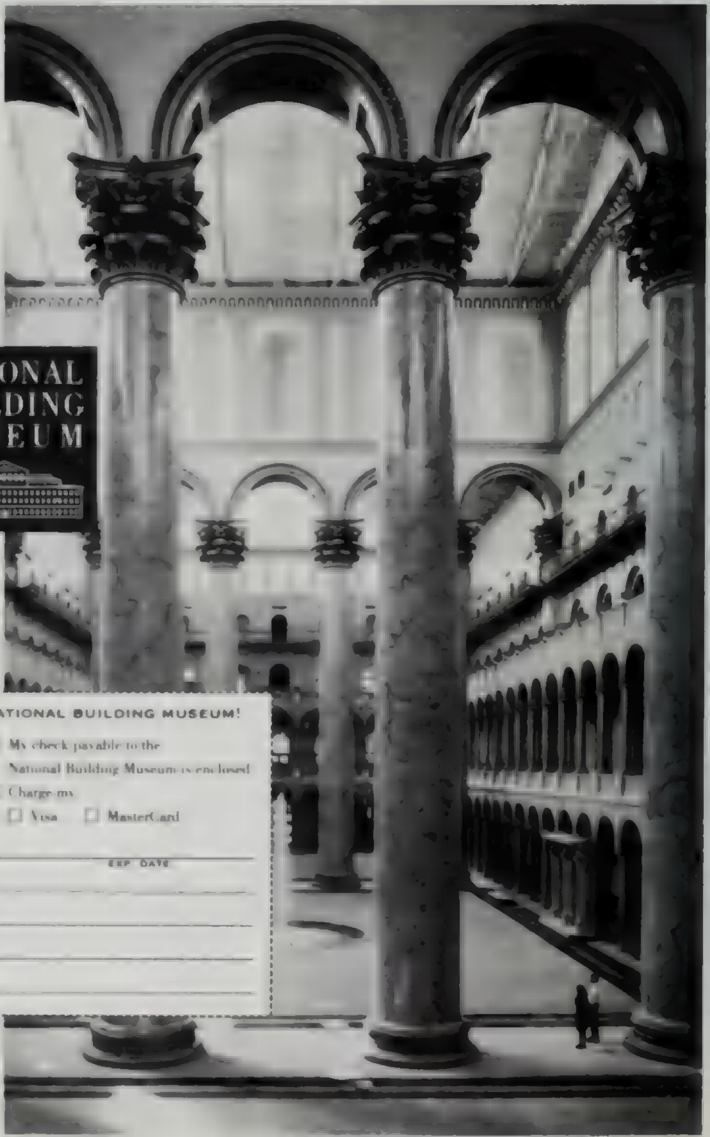

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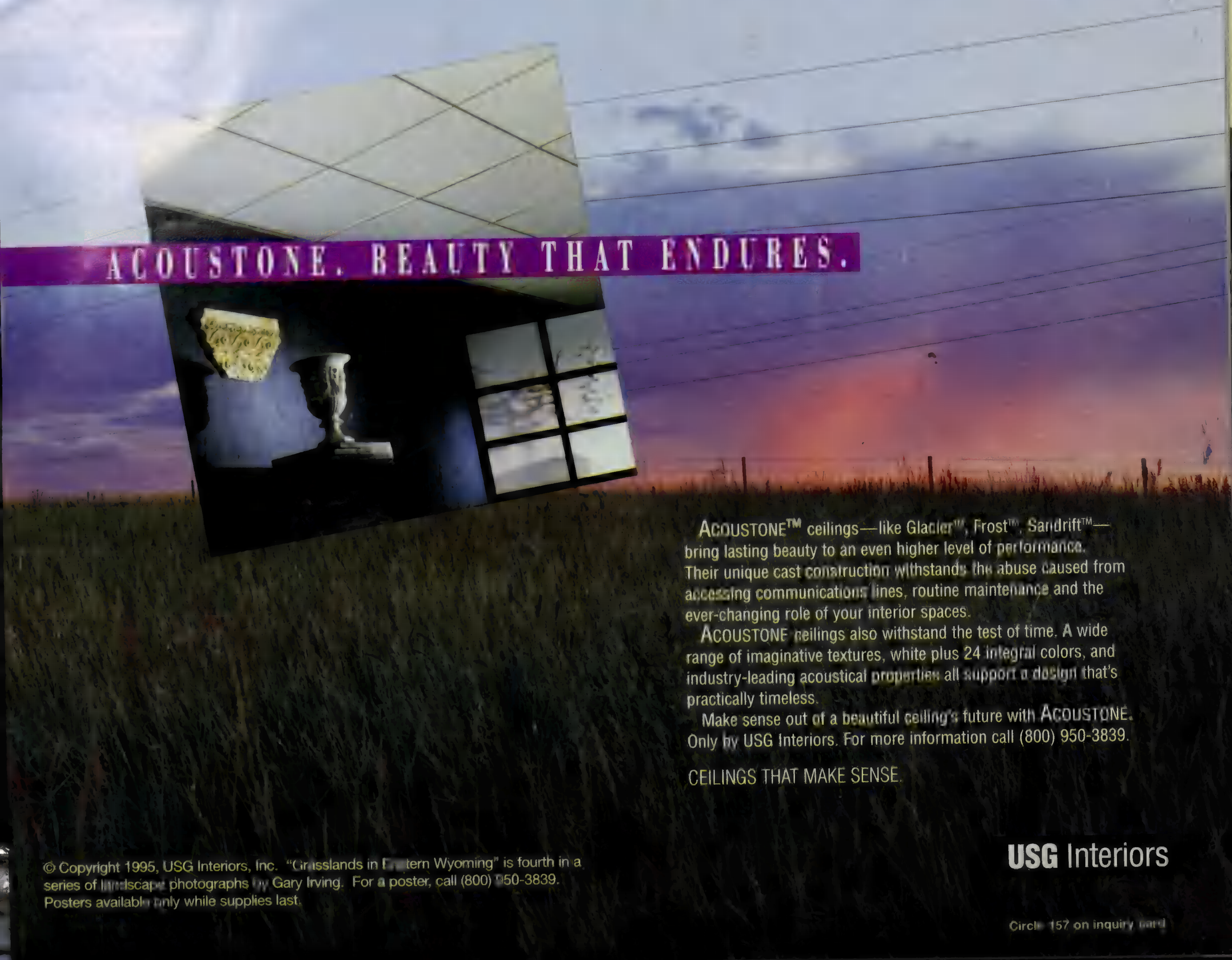

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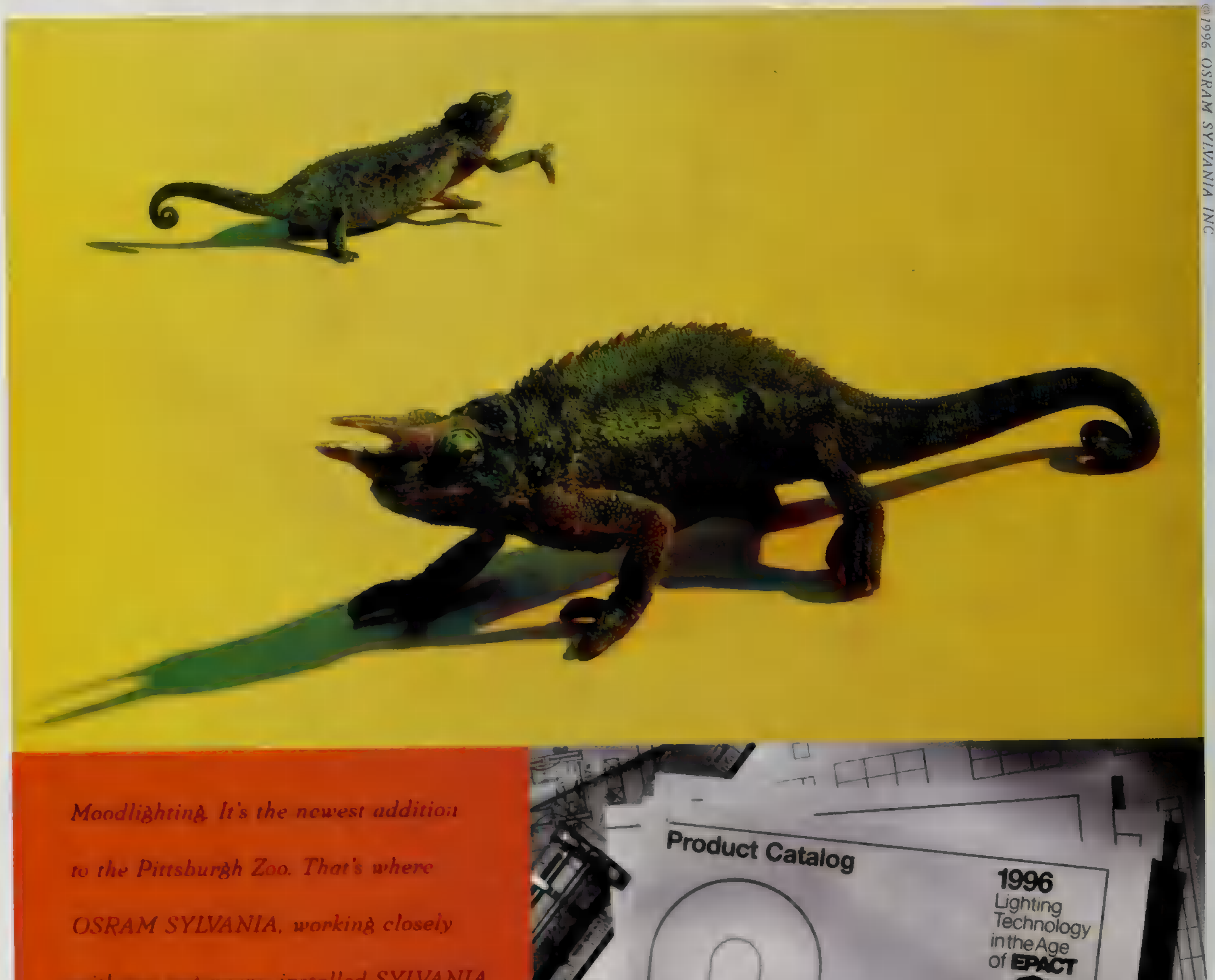

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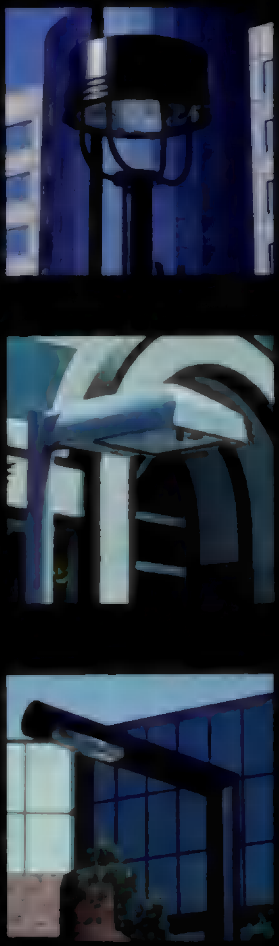

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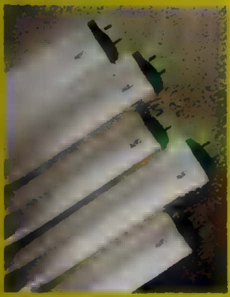

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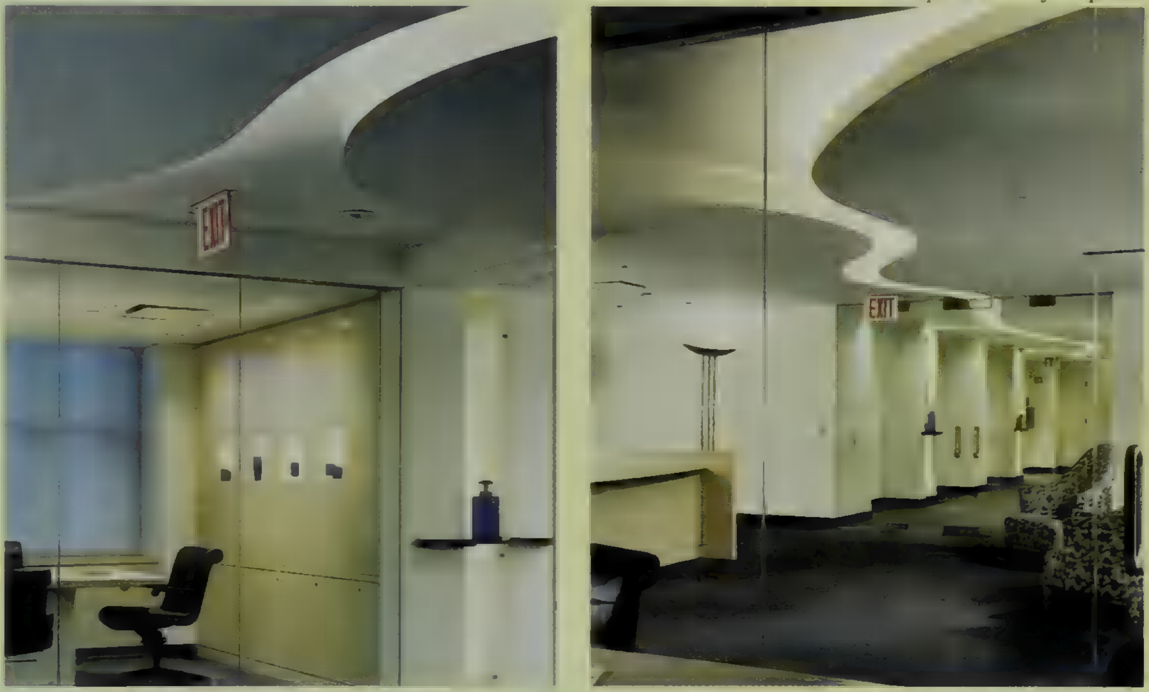
New York City

A Low-Cost "River of Light" Solves Budget-Cut Dilemma

The design for the New York offices of the German-based Lancaster Group included a handsome, perforated-metal ceiling. When the budget was slashed midway through the job, lighting designer Ann Kale, of Ann Kale Associates, was forced to come up with an alternative solution. "Clearly, gypboard was all we could afford. What could we do with gypboard? We decided to cut it," says Kale. She designed an ingenious "river of light" that flows from the lobby through reception to the corridor. The low-voltage strips with 10W lamps shine through a slot at the top of the sinuous curves of gypsum board, adding a sculptural element to the space. This office for a producer of men's cologne also includes display niches. Lined with angled white art-glass, backlit by low-voltage strips, and top-lit by fluorescents, the cabinets create bright ambiance in a space devoid of daylight. ■

© Christopher Wesnofske photo



Continuing Education

Lighting Academy Workshops Premier

A series of workshops given by the newly formed Academy of Lighting Design will be presented by the International Association of Lighting Designers (IALD) this fall. The workshops have CEU Accreditation from the ASID and IIDA, and AIA accreditation is pending. The series consists of intensive, two-day seminars that will be held in San Diego, Washington, D.C., and Orlando, between late October and mid-November. Workshop topics are: the "Basics of Lighting Design," by James Benya; "Humanizing Light for Residential Interior and Exterior Environments," by Randall Whitehead; "Energy Issues," by Naomi Miller, and "Office Lighting," also by Miller. The pre-registration deadline is October 16, 1996. For detailed information, or to pre-register, contact Renee Gable at 404/220-2217, or Danielle Varrone at 404/220-2221. ■

Miami

Blue Metal-Halide Supports New Award-Winning Bridge

© Advanced Lighting Technologies photo

The clear blue light of metal halide throws the flared piers of the award-winning Port of Miami-Dodge Island Bridge into sharp relief. Designers BHA chose Widelite, a manufacturer, to develop six lighting schemes for consideration by a citizen's task force. Enclosed-and-gasketed floodlights were selected for their ability to perform in the corrosive marine environment. Sixty of Venture Lighting's blue long-life metal-halide lamps render precise colors on the north and south faces of the bridge piers. ■

Buddhist Temple Annex in Tokyo Receives the 1996 IALD Award of Excellence

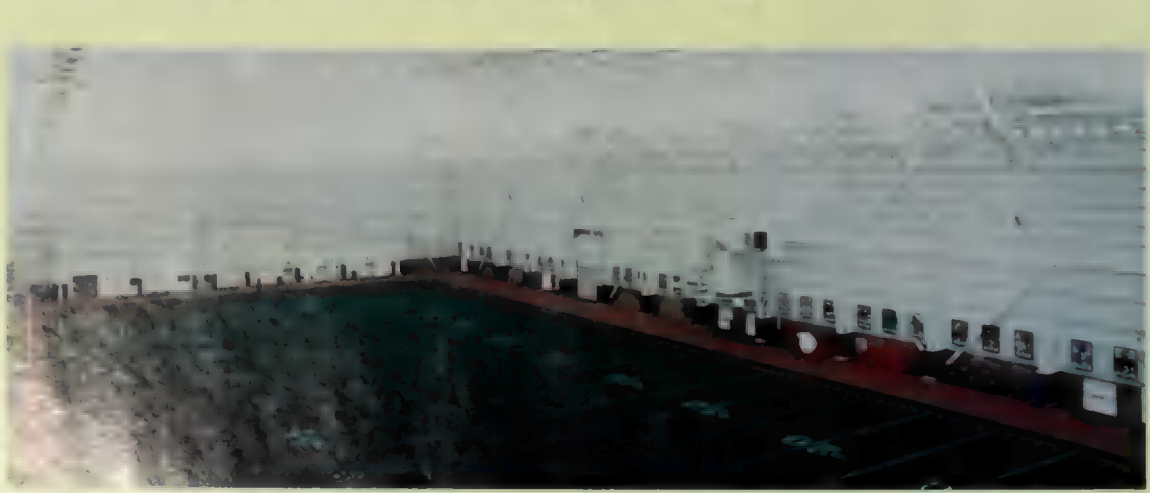
The 1996 International Association of Lighting Designers (IALD) Award of Excellence was given to a Buddhist temple annex located in Tokyo, Japan. Selected from among 124 international entries, the Myochi Kai Annex Building (right) in the heart of Tokyo was declared to be "the best integration of light and architecture" by the jurors. The project consists of interior and exterior lighting for a pathway to the main temple, a three-story annex building, and a single-story service wing alongside the new road.

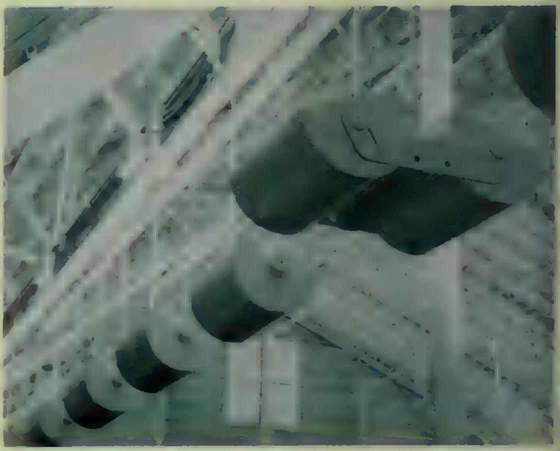
©Koji Horiuchi, Shin-Shashin Koubou Inc. photo

The award, presented at the 13th annual IALD lighting awards program, which was co-sponsored by IALD and Architectural Lighting magazine, was jointly accepted by lighting designer Takeshi Konishi of EPK International Inc., and by architect Hiroshi Hashimoto of Takenaka Corporation. Both firms are based in Tokyo.

Seven other projects received Citations for outstanding lighting design. These were: the Charlotte Convention Center in Charlotte, N.C., by Hayden McKay Lighting Design; the Fossil Halls, American Museum of Natural History, New York City, by H. M. Brandston & Partners; Hotel Kempinski, Munich, Germany, by Francis Krahe & Associates; an international investment firm in New York City, by Horton • Lees Lighting Design; Merchants Bridge in Manchester, England, by Jonathan Speirs & Associates; the San Francisco Museum of Modern Art, by Fisher Marantz Renfro Stone; and "Deep Time/Deep Space, A Subterranean Journey" at Denver International Airport, by Leni Schwendinger, Light Projects Ltd. ■

When Outside the Spotlight, the Buffalo Bills Train with Indirect Lighting





[illegible] indoor training center in the [illegible] of Buffalo, N.Y., is a large, [illegible] skinned with metal [illegible] is 422 feet long, 222 feet [illegible] at its apex—the tallest [illegible] the league—and is entirely illuminated with indirect lighting. The requirements were a minimum of 50 fc at ground level, which is achieved by 302 1000W SPI metal-halide fixtures, stem-mounted 56 feet above the floor. Every sixth fixture is double-clustered to add light to the running track that circles the perimeter of the field. All fixtures point upwards so that the light reflects off a white painted ceiling onto the arena, avoiding glare. The project architects were Duchscherer Oberst Design, based in Buffalo. ■

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ZUMTOBEL

Low-Tech Dimmers Meet Fluorescent

A new generation of ballasts allows ordinary incandescent dimmers to be used in place of expensive ballasts and specialized dimmers.

By Lindsay Audin

Wouldn't it be nice to specify (and even install) fluorescent dimming as easily as one provides incandescent dimming? Several brands of electronic ballasts are now available to do just that. When connected to standard incandescent dimmers, these ballasts smoothly vary the output of fluorescent lamps as though they were incandescent lamps. Forget about low-voltage control wiring, $100 ballasts, specialized dimmers, and the extra labor (and screwups) of the past—the outlook for dimming just got a bit brighter. The technology is new, though, so some care is needed in its application.

In general, most of the new models serve one or two 4-foot linear fluorescent lamps (different models power either T8s or T12s) and have specs and casing sizes similar to the many brands of non-dimming electronic ballasts now on the market. One brand, Solium, Inc., also offers a half-size-case version that powers the heftier versions of compact fluorescent lamps, 18W and over.

> *"Fluorescent dimming made as easy as incandescent—with no control wiring."*

None of the new ballasts accepts voltage above 120V, so their application may be limited in new construction. They are worth a look, however, when upgrading conference rooms, lounges, and new computer spaces that would benefit from an adjustable light level. Meeting energy codes with restrictions on installed wattage is also easier when using fluorescent—instead of incandescent—dimming. Pricing is reasonable, with most models coming in at or below the cheapest dimming ballasts that must use control wiring.

In general, the new ballasts boast reasonably good technical specifications: low total harmonic distortion, high power factor, high maximum light output, three-to-five-year warranties. As with any type of lighting control, specifiers and designers working in high-end spaces need to determine the impacts of other operational factors such as hum, starting method, radio-frequency interference, failure mode, and so on.

Not all dimmers are created equal

Most dimmers that fit into a wall switch box may look quite similar, but there are some differences when using them for fluorescent dimming. Almost all have either a rotating knob or a slider to vary light output, and many can handle up to 2000W. Inside each box is a solid-state device that adjusts power by chopping off part of the first half of the AC wave form. Note that there are more than a dozen manufacturers of incandescent dimmers, not all of which have been tested with the new ballasts. In some cases, one model from a given manufacturer works well while another does not. One ballast vendor supplies a list of dimmer manufacturers and model numbers that sorts out which work best, and other vendors expect to do so in the near future. When mismatched, typical problems include:

- inability to reach full light output
- hum or other noise at the dimmer
- inability to start the lamp except at a high setting.

Those interested in using this technology should verify how well a desired ballast/dimmer combination will work before taking the concept to a client, or beginning an installation. Sufficient differences exist among the brands that novices may wish to work with a manufacturer's rep on their first installation to avoid any blunders. There are also a few other wrinkles (such as mixing incandescent and fluorescent lamps on the same dimming circuit) that have yet to be ironed out.

Not all dimming ballasts are equal

While all bear the UL label, the technologies of the new ballasts are not identical, making it risky to mix them on the same dimmer. Bottom line: if you start with ballast type A, stay with ballast type A, because mixing it with ballast type B may create technical problems. Mixing compact and linear fluorescent lamps on the same dimming circuit may also be a no-no. Building operators take note: this means that a few extra ballasts should be kept in stock to avoid inadvertent mixing (or ordering) of dimmable ballast types by personnel unaware of the differences.

There are also variations in the capabilities and specifications of different ballast manufacturers. Failure to take heed of the vendors' technical data sheets may result in unfortunate mistakes and/or poor performance. For example, the B&L Technologies system dims down to 0 percent light output, while others (such as Solium) level off at 20

Continued on page 28

Table of dimmable ballasts dimmable with incandescent dimmers

Vendor name and phone number	No./type of lamps	Dimming range (in percent)	Warranty period	Pricing
B&L Technologies 800/361-1400	2FO32T8 2F40T12	0-100	3 years	$35
Energy Savings Inc. 847/925-8400	1 or 2 FO32T8	15-100	3 years	$25
Stocker & Yale 603/893-8778	2 or 3 FO32T8 or F40T12	20-100	5 years	$45
Tek-Tron 714/975-1978	2FO32T8 2F40T12	0-100	3 years	$30-50
Solium Inc. (800) 4-SOLIUM	18, 26, or 32 W CFL, 28 W 2-D	20-100	5 years	$45-60
	1 or 2 FO16T8 to FO32T8	20-100	5 years	$35-45

Lindsay Audin is energy manager for Columbia University, and lighting research consultant to E source, a Colorado-based energy consulting group.

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STAFF

Seen at Lightfair

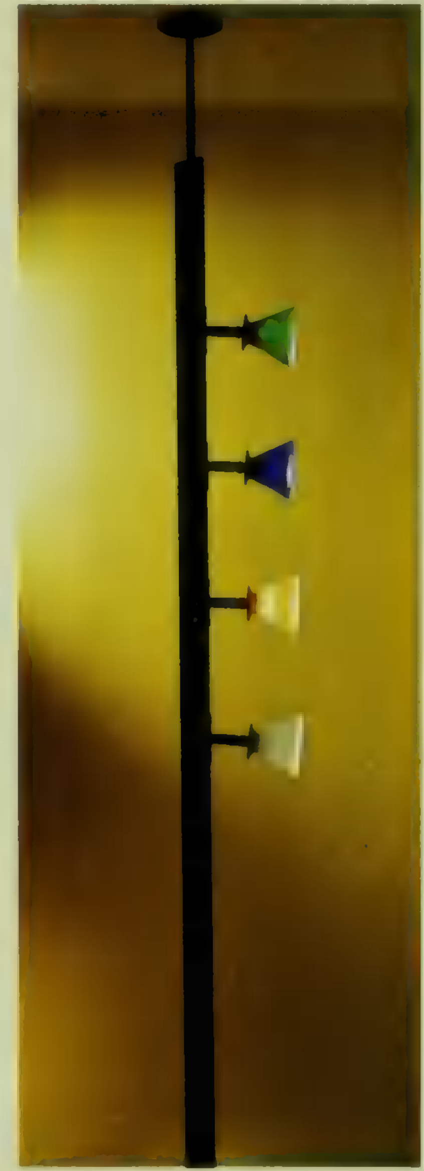
350. Portable track light.
A vertical wedge-shaped aluminum standard, the Barracuda can be set up without tools in minutes. Spring-loaded fittings give it a floor-to-ceiling reach of 7 to 10 feet; the plug-in transformer is dimmable. Fixture can accept any Altima lv spot: Cono glass shades are shown. Applications include retail display, lobby spaces, and homes. 800/879-9797. Lucifer Lighting Co., San Antonio, Tex.

351. In-pavement point source.
Fiber-optic Paver Systems are small stainless-steel fixture heads with Pyrex lenses designed to be embedded flush in concrete, stone, or other types of masonry. Lit by remote single-lamp illuminators, installations can operate in several modes, including sequentially with color changes. Listed for wet location. 800/FBR-STRS. Fiberstars, Inc., Fremont, Calif.

352. Almost-invisible emergency light.
Aptly called the Chameleon, this new fixture provides code-compliant emergency lighting without cluttering up interior walls or ceilings. When activated by line-voltage interruption, a 12v or 24v DC-operated door opens, the lamp-head rotates out, and quartz-halogen bulbs (up to 150W) provide illumination where needed. In its standby mode (352-a) the fixture blends into its surroundings. UL tested, the Chameleon meets the 1994 Life Safety Code, as well as the higher light levels of the UBC, with fc readings that permit 40 ft o.c. spacing. Lamps have a 3,000-hr rated life. 612/781-9372. Concealite, St. Paul, Minn.

353. Asymmetric task light.
A new shape by Japanese architect Isao Hosoe, Heron works with Luxo's classic adjustable-balance articulating armature. The lamp head aims light across a work surface or computer keyboard rather than directly onto it. Made of molded reinforced nylon, Heron comes in white, black, and metallics. 914/937-[illegible] Luxo Corp., Port Chester, N.Y.

354. Miniature low-voltage housing.
The [illegible] recessed downlight is said to [illegible] lighting in the smallest of [illegible] spaces. Including the transformer, the unit measures 6-in. high, 5-in. [illegible] Type IT meets US 1571 [illegible] with insulated spaces. 800/[illegible] Lighting, Los Angeles. ■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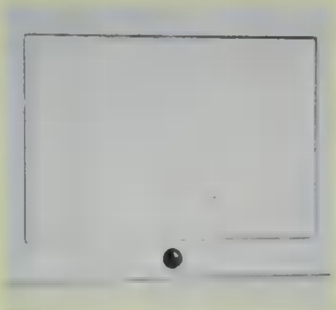
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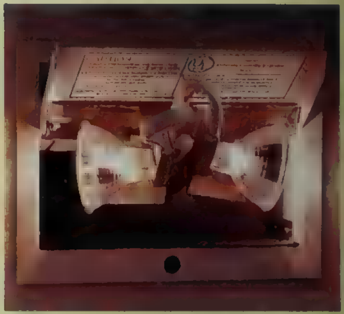
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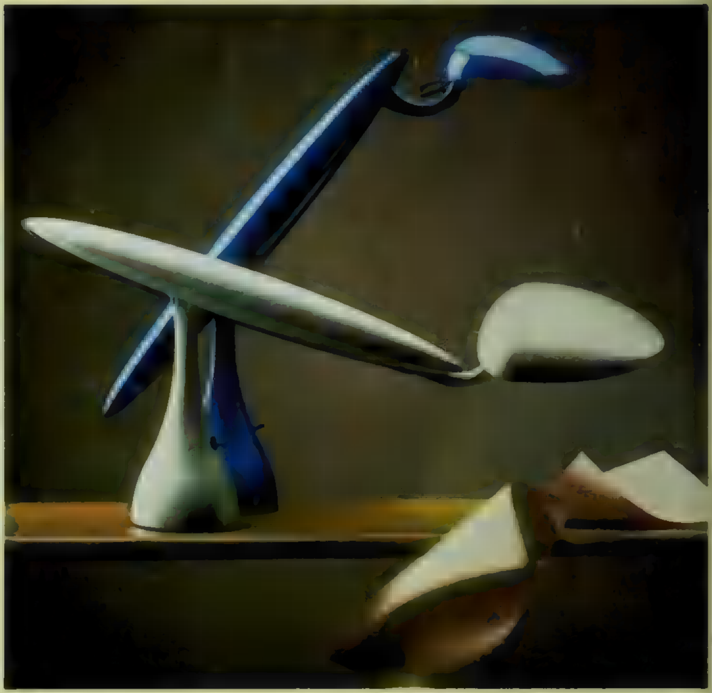
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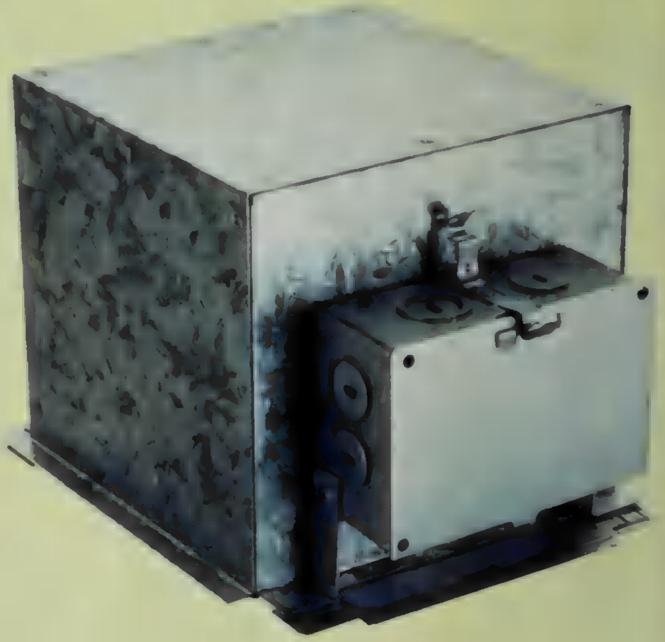
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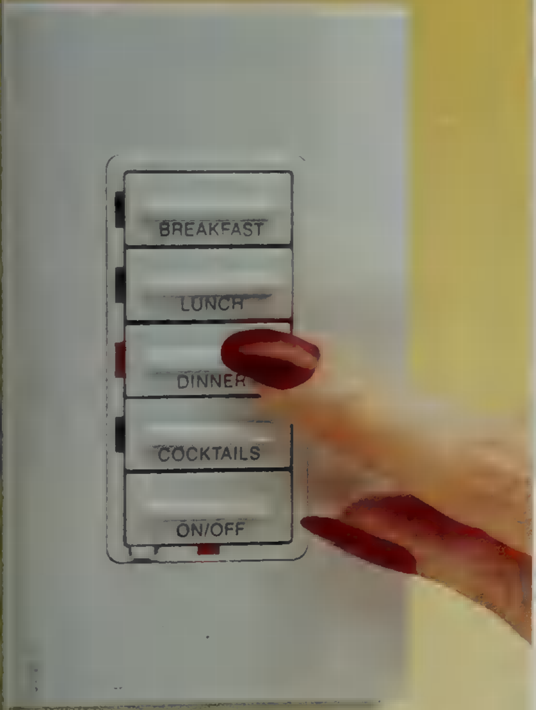

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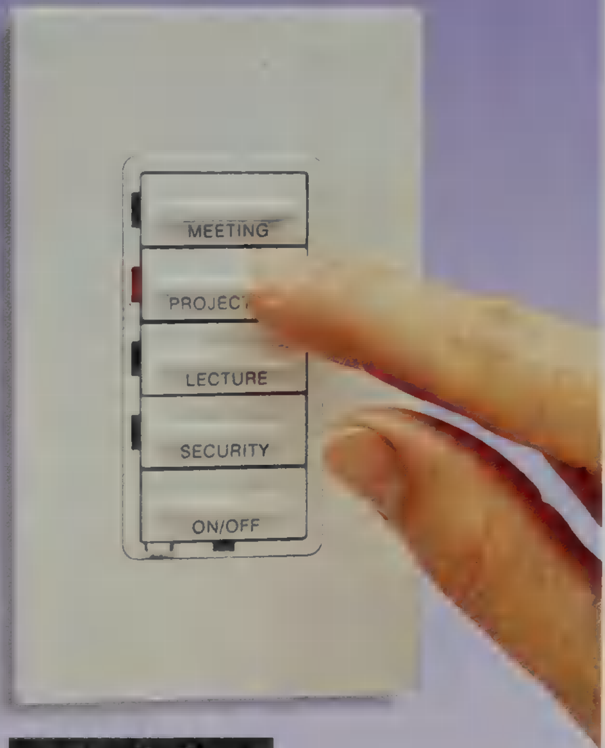

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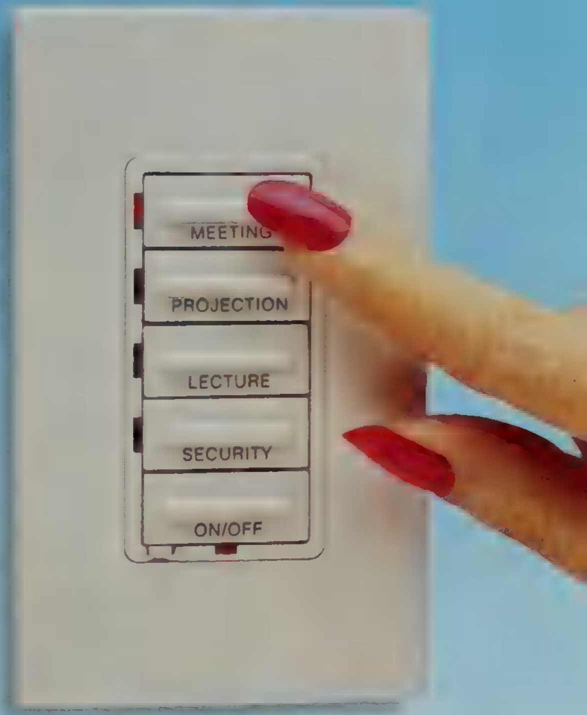

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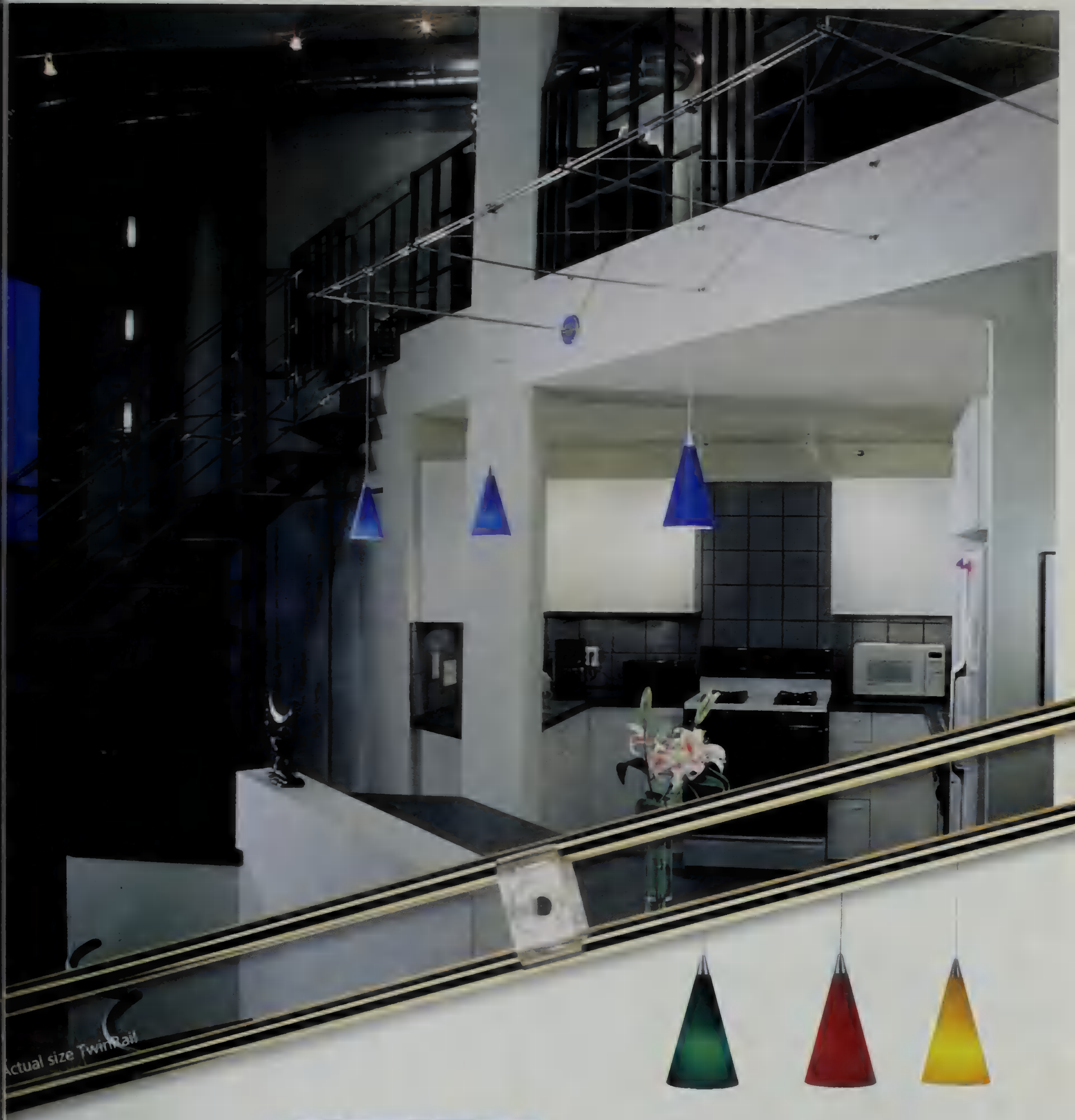

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Lighting Lets the Mood Swing

The Edge Cafe
Colgate University
Hamilton, New York
Einhorn Yaffee Prescott, Architecture and Engineering, Lighting Design

Colgate University's Bryan Dining Hall was clearly in need of a facelift. Constructed in 1966 as a common eating space for four residence halls, it consisted of two separate dining rooms connected by a kitchen. The dark dining rooms were isolated from each other by the location of the outdated, central kitchen. Bryan Hall was the least-used dining hall on campus.

The inspired solution, by the Albany-based firm of Einhorn Yaffee Prescott, was to create a fan-shaped pavilion in an existing courtyard space. The addition of 3,000 square feet now neatly connects the dining areas, and increases the seating capacity from 160 to 250. The dining hall has now been metamorphosed into the Edge Cafe, a popular place on campus that, besides being a dining hall, serves as a coffee shop, night club, and event area. The interior is open and airy, with the steel-truss structure exposed to define the architectural form and character. The finishes and furniture are basic. The designers have relied on the lighting to create the excitement.

"We had to create a space which would be appropriate for Saturday night dances, Sunday morning poetry readings, and a few other things in between," says Antonio Yau, principal for architectural interior design. To achieve this, the designers set up three simple lighting hierarchies, which can then be mixed in different combinations to create a variety of moods. The majority of the ambient lighting is provided by incandescent 75W PAR30 cylinder downlights mounted at 12 feet. In addition, glass shade 50W MR16 gemlights are cable-mounted at 9 feet. The black-finished downlights recede into an exposed black steel frame and can be dimmed, leaving the gemlights to create the intimate glow appropriate for a cafe. Lighting for dining-hall use has been created by uplighting the main circulation axis with 3500K T8 fluorescents, and a brick wall leading into the food court is washed with four 150W 3000K metal-halide lamps.

A raised area in front of the brick wall can act as a stage area for anything from lectures to theatrical events. Incandescent downlights recessed into a soffit in front of the stage provide a generous amount of light for the less dramatic of these occasions, while additional spotlighting positions are provided by an architectural space-frame for more ambitious theatrical events. For parties and dances, a flash of color is provided with a fiber-optic lighting system which traces the space frame and encircles a painted dance floor. Using four 150W metal-halide illuminators and revolving color wheels, the light transmitted by the fibers can constantly change colors, or remain the same color. All of the lighting systems are controlled by a programmable, preset dimming system that allows lighting to change from dining to lectures, dances, and performances with ease.

At a time when institutional cost-cutting is commonplace, and universities must make the most of what they have, the four-in-one facility is a great asset. "Students love the facility. It is in constant use," says lighting engineer Nick Ferzacca. *Nayana Currimbhoy*

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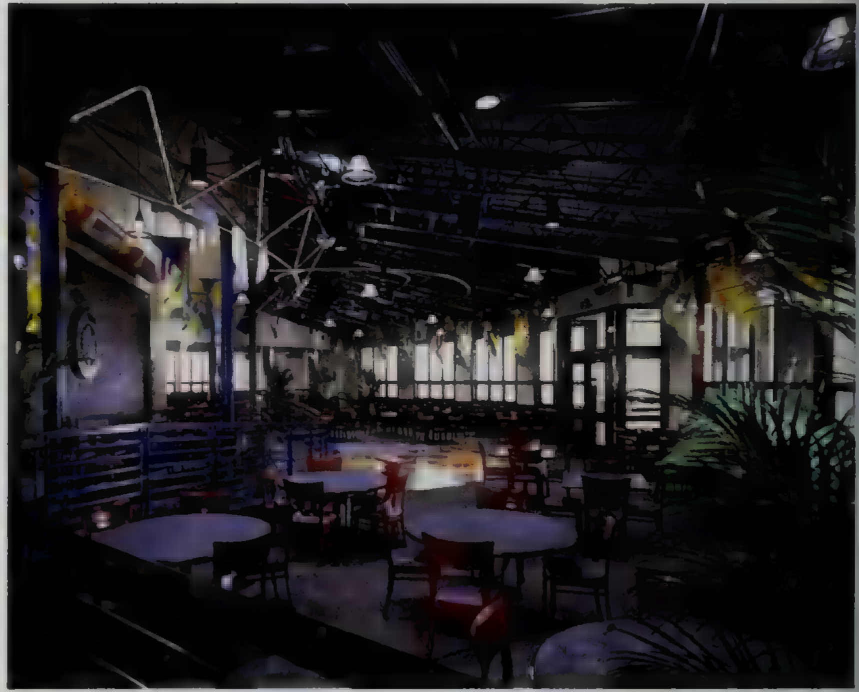

A fan-like pavilion built in a courtyard space has joined two little-used dining rooms to create the popular Edge Cafe at Colgate University. Layered lighting systems create a flexible space that can be used for dining, parties, lectures, and as a coffee house.

Credits
The Edge Cafe
Owner: *Colgate University*
Architects: *Einhorn Yaffee Prescott, Architecture & Engineering—Steve Einhorn, principal-in-charge; John Myers, project architect; Antonio Yau, interior design; Cahal Stephens, project manager; Nick Ferzacca, electrical engineer.*
General Contractor: *J. D. Taylor Construction Corp.*
Electrical Contractor: *Kogut Electric, Inc.*

COLGATE UNIVERSITY
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Capturing the Romance Of River Boats

The *American Queen* is the largest steamboat in the world. One of three steamboats belonging to The Delta Queen Steamboat Co., the ship offers leisurely cruises along the Mississippi and Ohio rivers, and replicates the design of the legendary river boats of the last century.

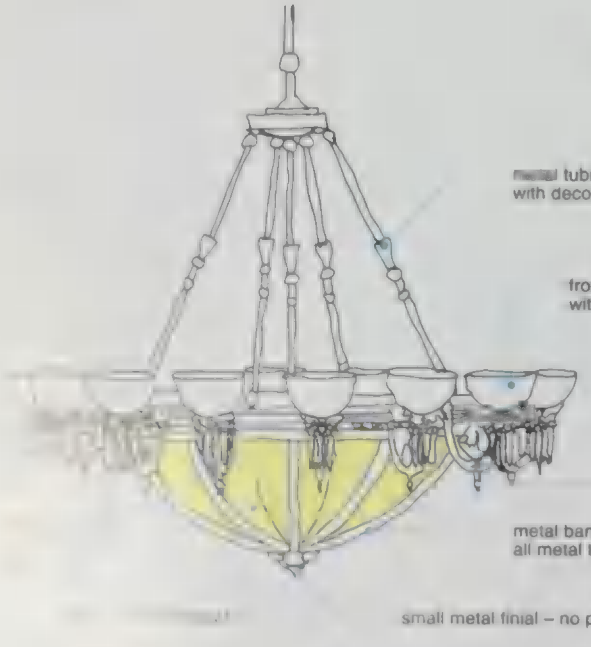
The $65-million boat needed light fixtures to complement its ornate, Victorian interior. "The old river boats, of course, had no electric lights," says lighting designer Randy Burkett. "We created the interior that people imagine, one that captures the romance of the riverboats." After researching riverboat lore, the firm worked with a St. Louis custom-lighting design shop, Gross Chandelier. "We went through hundreds of their drawings, archived since 1900, and created a fixture palette that ranged from ornate fixtures for the public areas, down to sconces for passages and staterooms," says project designer Ron Kurtz. In the grand saloon (below right), conceived as a miniature, period opera house, two large chandeliers dominate the central ballroom space. Low-voltage, 5W halogen lamps recessed into gold wooden stars dot the ceiling around these chandeliers, bringing in a reminder of the luminous sky overhead. Carbon-filament lamps ringing the perimeter of the dance floor as well as the proscenium add a theatrical touch to the space, which is used for group events.

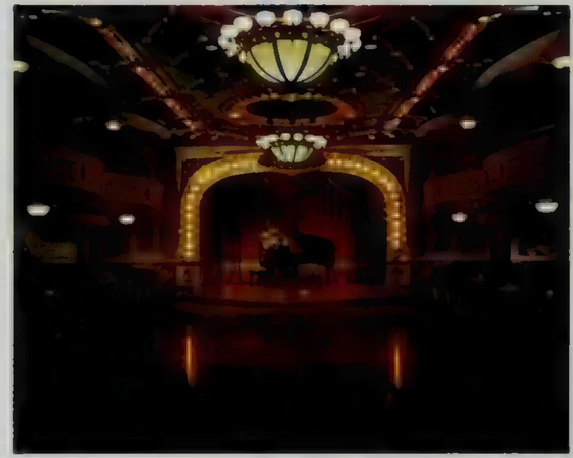
On the exterior, the large red paddlewheel at the back of the ship, as well as the stacks, are accented by PAR56 500W floods. Although Coast Guard regulations prohibit these lights from being used while the ship is in motion, the *American Queen* becomes quite a spectacle when in port. *Nayana Currimbhoy*

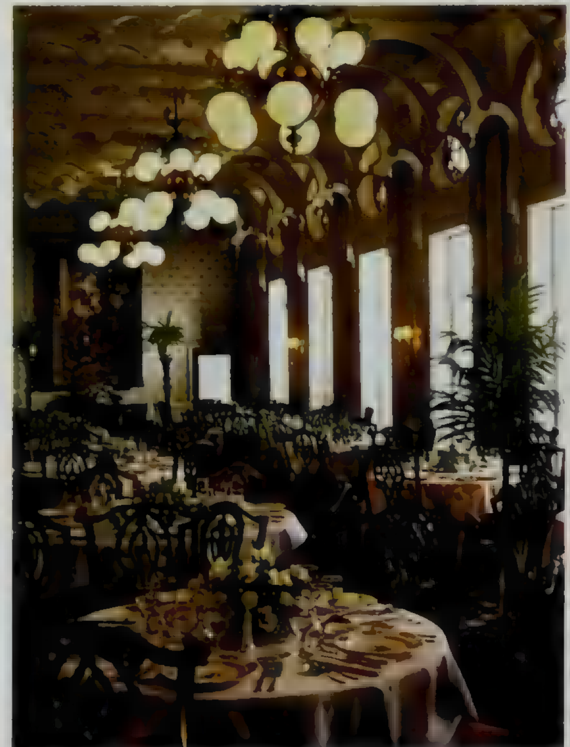
Credits
American Queen
Owner: *Delta Queen Steamboat Co.*
Naval Architect: *Rodney E. Lay & Associates*
Environmental Theming: *Communication Arts*
Lighting Designer: *Randy Burkett Lighting Design*

© Delta Queen Steamboat Co. photo

In the dining room and public spaces (below right), large, custom chandeliers, replicated from archival designs, complement the Victorian interiors. The chandelier in the grand saloon (right and below) is five feet in diameter, six-feet high, and nickle-plated.







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Eyewear Shops Show Architect's Double Vision

In a marketplace inundated with fast-growing chains of stores, small, privately-owned shops are relying more and more on design to attract customers. So it is with the two optometry shops in San Francisco designed by architect John Lum. "The trick to designing an optometry office is to create visual intrigue for a product that is small and quite delicate," says the San Francisco-based Lum, who has become somewhat of a specialist in this niche market. Both Urban Eyes and Dr. Jimmy Fong Optometry employ lighting in three ways: on a large scale, the lighting has been used to complement the architecture, and to create a stage setting that is both theatrical and comfortable for the customer. On a small scale, the lighting makes the merchandise sparkle like jewelry.

At Dr. Jimmy Fong's (this page and opposite), a large "eye" is inscribed in the rubber floor, with each quadrant boldly delineated in contrasting colors. This establishes a strong identity for the boutique. Circumscribing the outer ellipse of the eye is a curved display wall with cantilevered glass shelves. A system of 2-in. by 10-in. maple columns lined with adjustable glass shelves provides a strong counterpoint to the display wall. Eight MR16 pendant lights cast a warm glow on the displayed products, and make them glitter.

The ceiling mimics the eye-shape on the floor. Uplit with two T8 fluorescents, the ceiling appears to float, creating the non-glare environment essential to an optometric practice, while also meeting California's strict energy codes. Recessed MR16s on the right side of the "eye" add "a crisp edge to this clever, low-budget space," according to lighting designer Alice Prussin of Illumination Design Collaborative.

At another San Francisco store, Urban Eyes (following two pages), Lum uses elements of the urbane, cafe-like atmosphere of the upscale neighborhood to create a stylish optical boutique. Steel and raw concrete contrast with refined maple finishes and finely upholstered furniture, as the sophisticated lighting and color schemes meld the elements into a unified whole. Eyewear is displayed on glass shelves supported by rubber-coated lag bolts, while a sinuous wood deck floats over the striated orange-and-purple linoleum floor.

Lighting designer Randall Whithead of Light Source Design Group worked with the architect from the initial design stages, creating a sophisticated, unobtrusive lighting plan which, like Jimmy Fong Optometry, also meets the stringent California energy code. Ambient illumination is supplied by 4100K fluorescent lamps mounted above hollow ceiling beams that provide even, glare-free illumination. Several types of display lights have been used to accentuate the merchandise. On the main display side of the shop, the merchandise is lit by floor-mounted 90W quartz PAR38 uplights. Next to the [illegible] areas, the mirrors are backlit by 13W compact-fluorescent fixtures, and a perforated-metal wall sparkles with low-voltage track [illegible] MR16 spots. *Nayana Currimbhoy*

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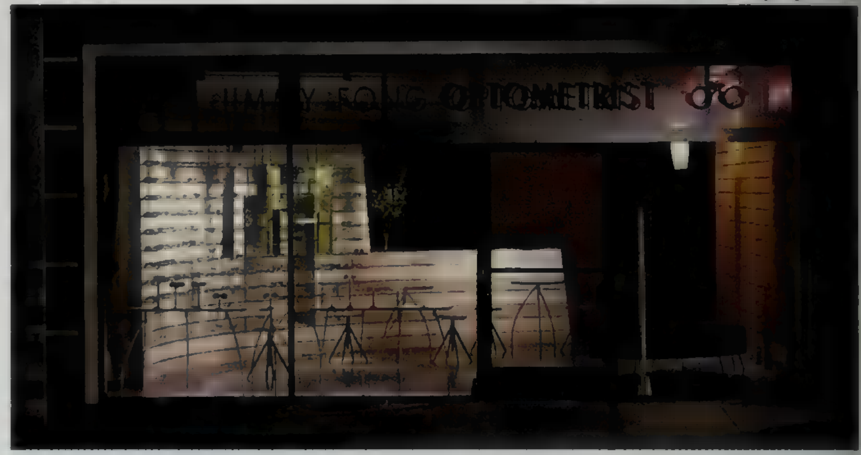
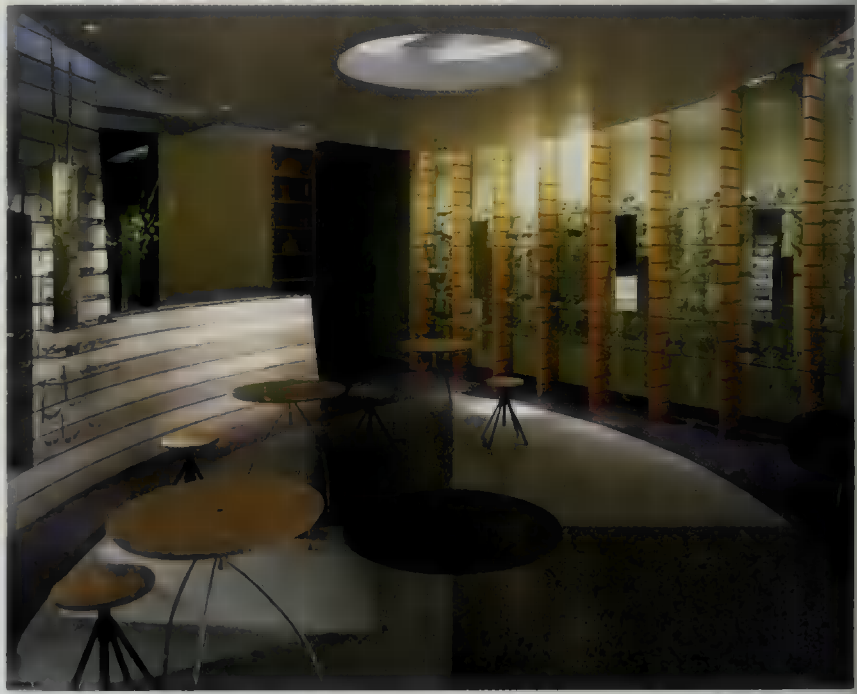
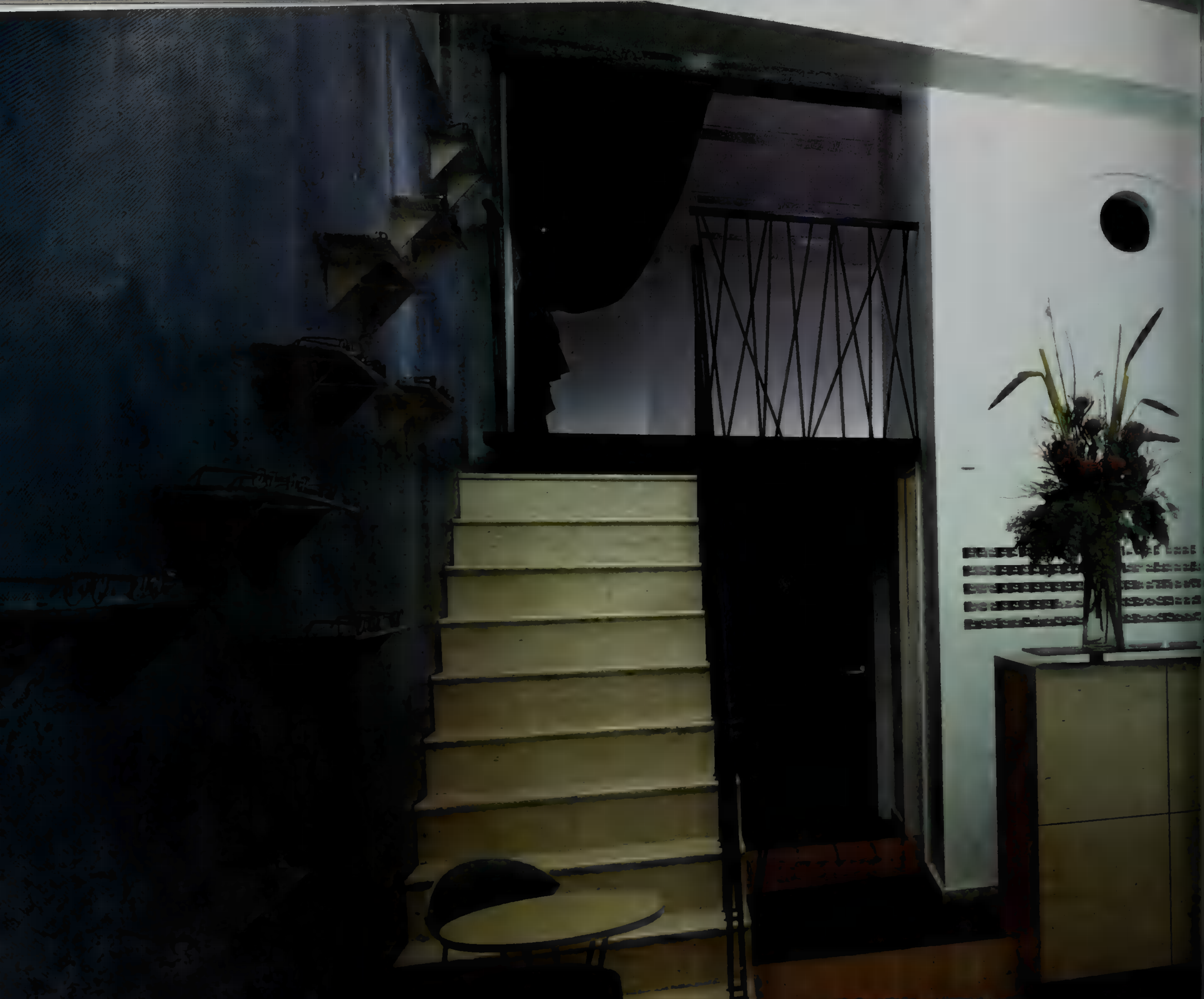
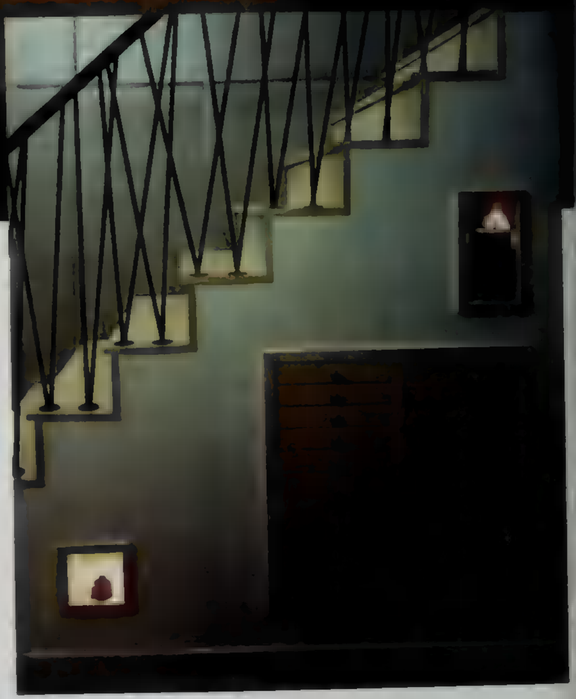




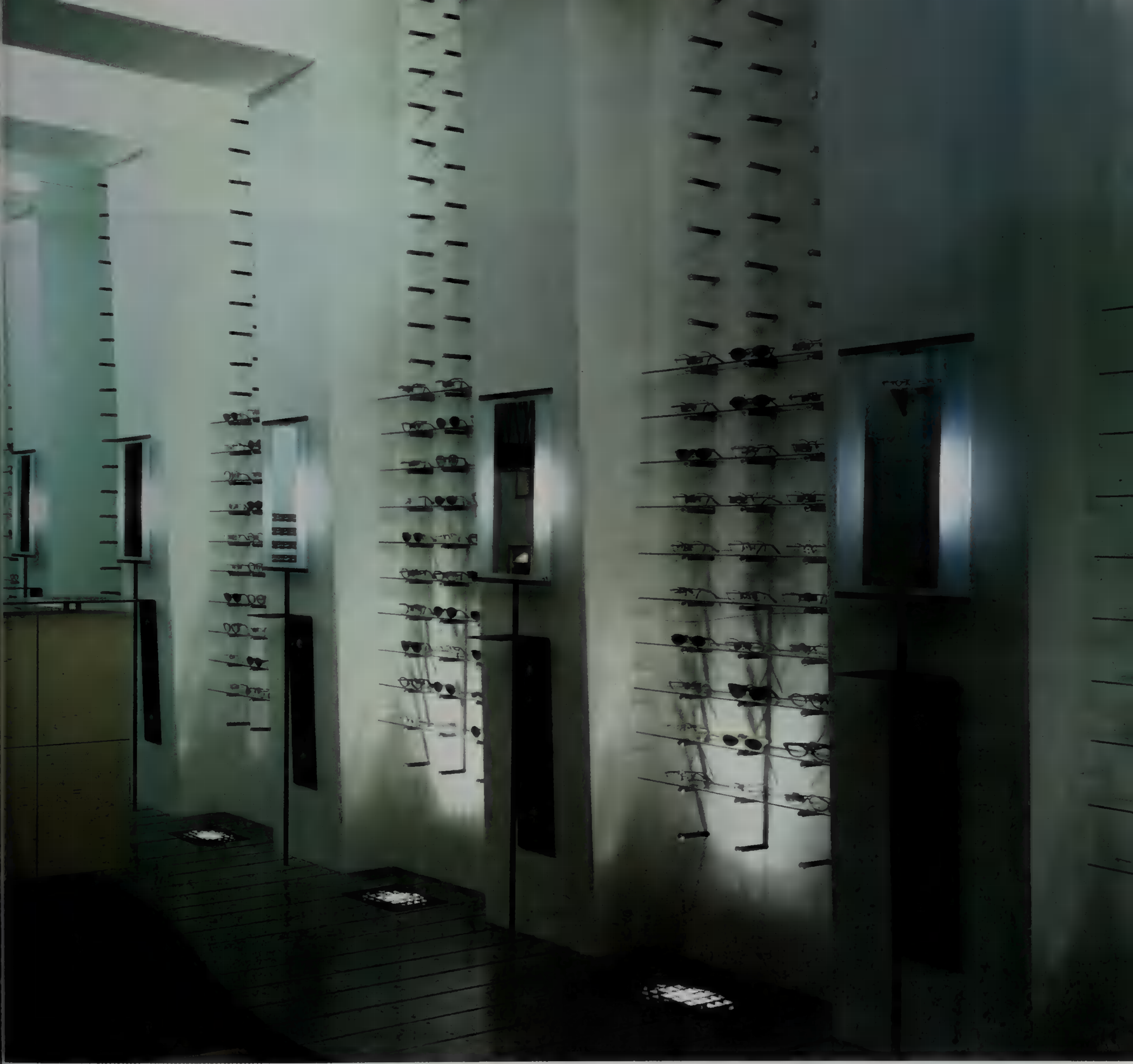
At Dr. Jimmy Fong Optometry, a large rubber "eye" on the rubber floor is reflected in a glowing ceiling uplit with fluorescents. The eyewear, displayed on floating glass shelves, is highlighted by recessed MR16 fixtures.

Credits
Dr. Jimmy Fong Optometry
Client: *Dr. Jimmy Fong*
Architect: *John Lum Architecture*
Lighting Designer: *Illumination Design Collaborative—Alice Prussin, Senior Associate.*
General Contractor: *Pascon Construction*





Inside Urban Eyes, a rock at the base of the deck is illuminated with a xenon lighting system. Under the staircase (above and inset), a Buddha shrine and a fish aquarium—regarded as important to the well-being of the store—are located in niches lit by unshielded miniature incandescent sources. In the display area, floor-recessed 90W quartz PAR38s uplight the displayed wares producing dramatic shadows.



Credits
Urban Eyes Optometry
San Francisco, California
Client: *Drs. Albert C. Lee and Lawrence Tom*
Architect: *John Lum Architecture*
Lighting Designer: *Light Source, Randall Whitehead, Principal; Catherine Ng, Associate*
General Contractor: *Rose Construction*

Divine Inspiration

Saint Mary's Cathedral of the Immaculate Conception
Portland, Oregon
Thomas Hacker and Associates, Architects
Interface Engineering, Lighting Designers

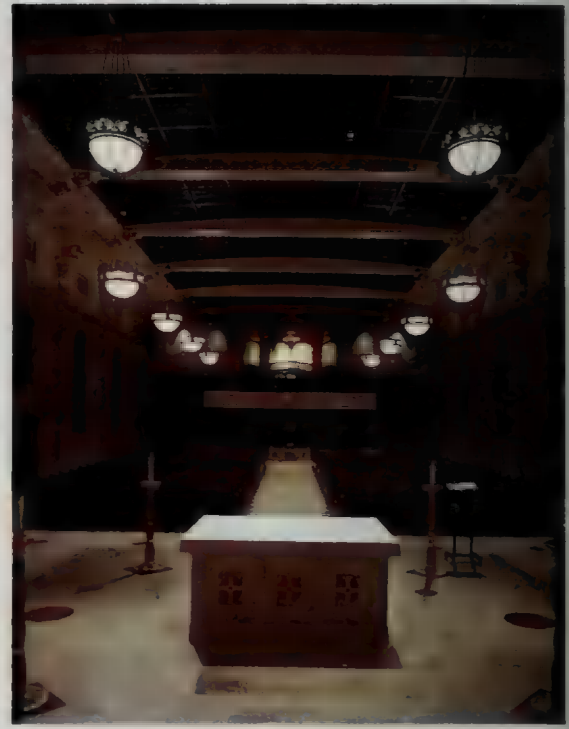
St. Mary's Cathedral was commissioned in 1924 by Archbishop Alexander Christie as a testament to the Catholic Church's strength in the city of Portland. The neo-Byzantine church, and its brilliant—and controversially realistic—murals of the life of Mary were perceived as a symbolic statement against the wave of anti-immigrant sentiment that was sweeping the nation at the time.

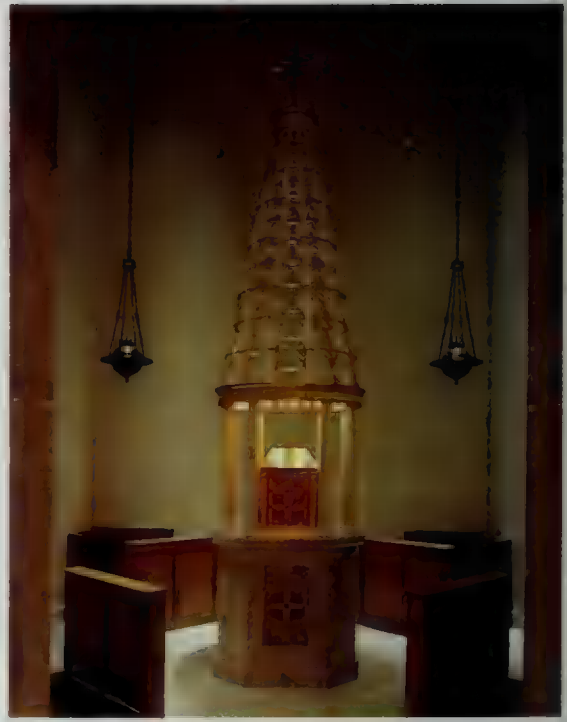
Years of neglect and haphazard renovations followed, and when Archbishop William Levada commissioned a remodeling in 1993, the brilliant color of the murals had been dulled by a whitish haze, walls and statues had been painted gray, and there was barely one footcandle of light in some areas. The ambitious $6.5-million renovation involved Portland architects Thomas Hacker and Associates, lighting designers from Interface Engineering, and various artists and craftspeople. The murals as well as the original, intricate plaster work were restored, and among items that were added were a grand coffered ceiling, a curving glass wall, floor mosaics, and three bronze doors.

"As in a stage set, the lighting was designed to direct the gaze to the areas of drama, but remain invisible," says lighting designer Robert Dupuy, of Interface Engineering. Because they wanted to light the entire church in incandescent, the designers appealed certain provisions of Oregon's state energy code to the Oregon Department of Energy. On the basis of the historic significance of the building, they were able to get a "divine dispensation"—a waiver of part of the code.

For both lighting and acoustical purposes, the large 15,000-square-foot-space has been treated much like a theater. In the apse, theatrical-framing projectors with adjustable shutters surround the murals, the cross, and the bishop's chair, while theatrical floods, with 750W halogen lamps, have been used to provide general illumination. Theatrical-framing projectors have also been used to highlight the altar, the pulpit, and the statues in the nave. The fixtures in the ceiling are deeply recessed to minimize glare, so lamps can be easily changed from the attic. The chandeliers, designed by the architect using the symbol of the Church's patron saint, the rose, are fabricated from steel and handblown glass, and each uses 10 100W lamps.

The lighting system for the entire church is operated by a theatrical dimming system. Sixty circuits are configured to control seven preset scenes. A priest can simply press a "noon mass" button, for example, and be assured of the right mood for worship. *Nayana Currimbhoy*





Like pieces of a stage set, the altar (top this page), the murals and the cross (opposite) are brought into sharp focus with theatrical-framing projectors. The tabernacle (bottom this page), located in a separate room, is lit by a ring of tiny 3W halogen lamps concealed in a frame, and an MR16 downlight in the ceiling illuminates the custom-designed tower and interior of the room.

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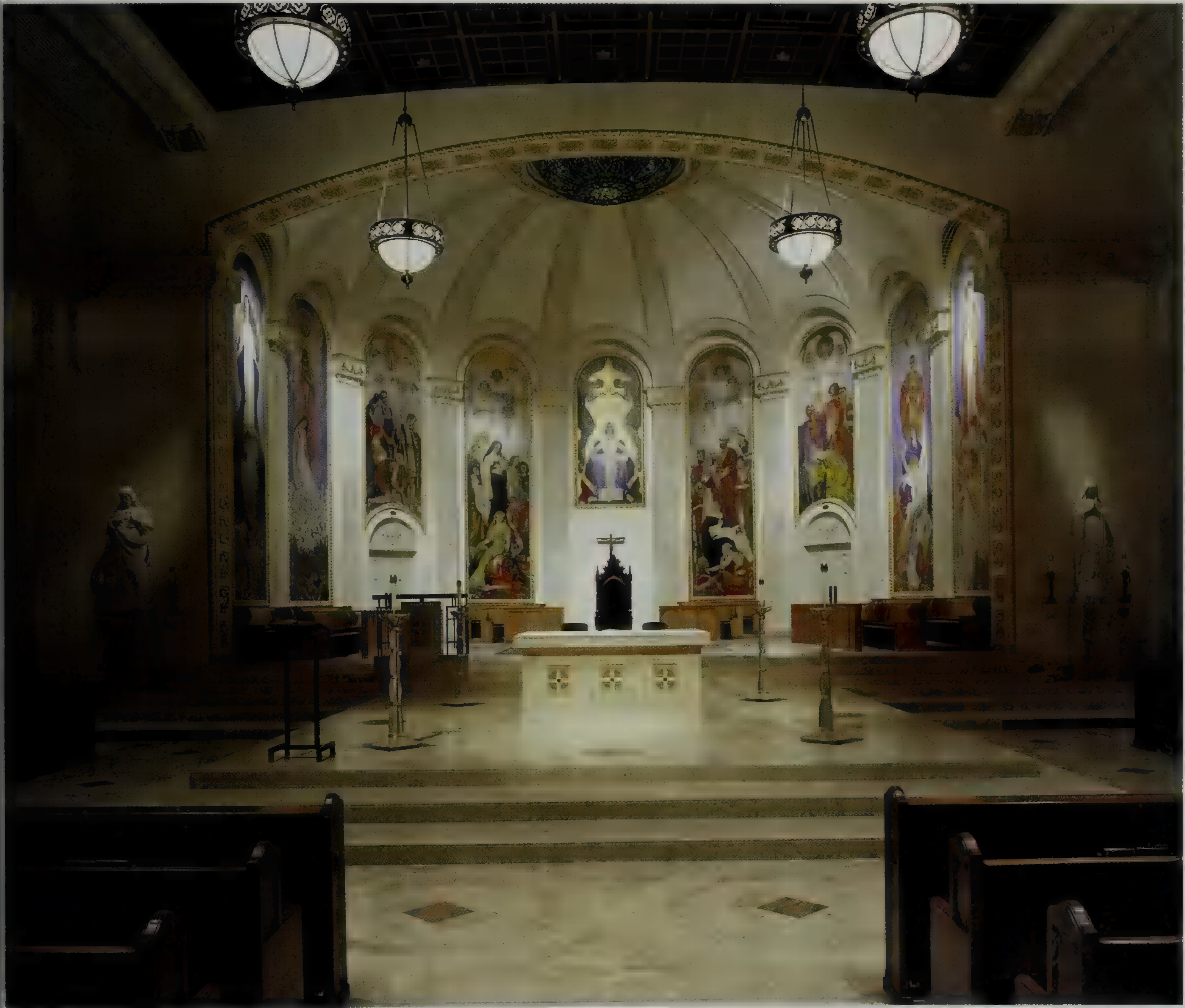

Credits
Saint Mary's Cathedral of the Immaculate Conception
Portland, Oregon
Owner: *Archdiocese of Portland in Oregon*
Architect: *Thomas Hacker and Associates*
Lighting Designer: *Interface Engineering—Robert Dupuy, project consultant*
Consultants: *CBGKL Consulting Engineers (mechanical/electrical); McMath and Dortignacq Architects (restoration); Altermatt Associates (acoustical)*
General Contractor: *A.C. Schommer and Sons*

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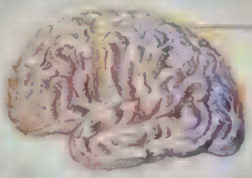

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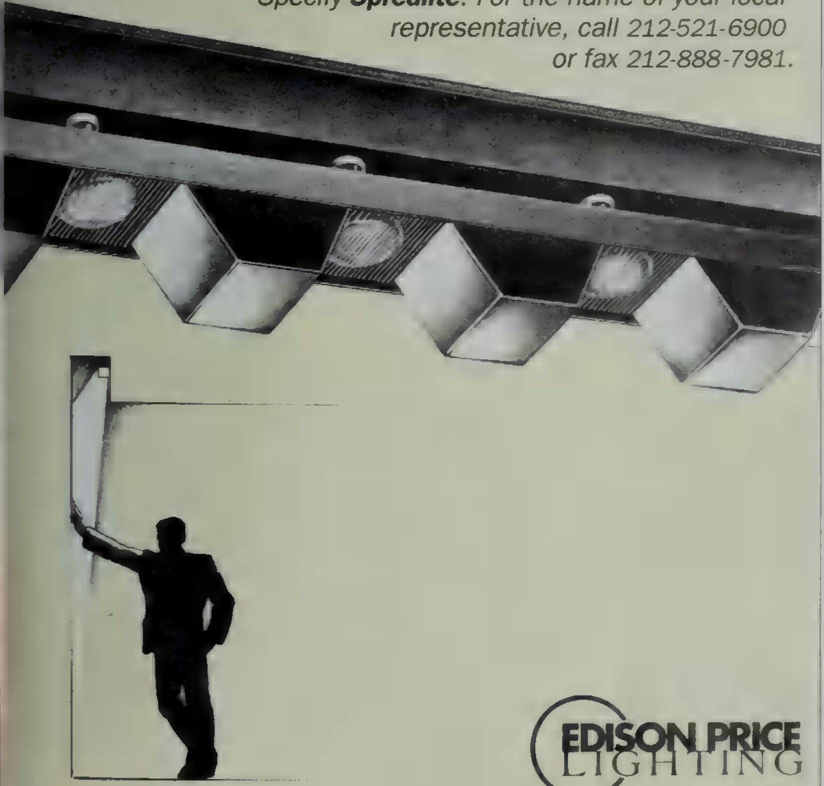

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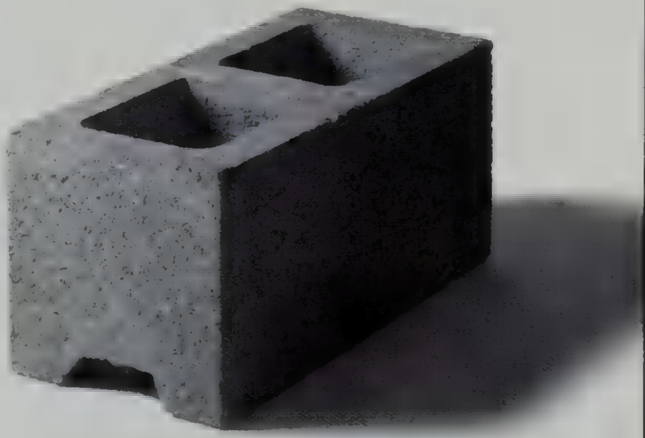

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Continued from page 12

percent light output. Many dimming applications (such as slide or computer screen presentations) require a reduction to 10 percent or less light output, so care is needed to ensure the right choice is made.

Despite the variety and number of manufacturers of these products, getting delivery may also be problematic for a while. In several cases, the product is only made overseas so new stock and replacements may take longer than one would like. Because of their novelty and lack of brand name, only a few electrical supply houses presently handle them, creating a situation similar to the advent of electronic ballasts in the late 1980s. At this time, some vendors of the new ballasts are unable to supply test reports verifying that lamp requirements, mainly those involving the starting mode, are maintained across the entire dimming range. Lamp lifetimes may therefore be somewhat speculative until a track record has developed using the new ballasts. On the other hand, unless lights are cycled on and off numerous times each day (such as by occupancy sensors), minor variations in lamp lifetime due to starting mode will probably not be noticed. Only one of the new ballast vendors was able to furnish the name of manufacturers using its products in new linear fluorescent fixtures, leading to the conclusion that this product line is, at the moment, aimed primarily at the retrofit market. It does hold promise, however, for bringing dimming capability where it was once not affordable. ■

Manufacturers' Sources

For your convenience in locating lighting fixtures and other products shown in feature articles, RECORD has asked the architects and lighting designers to identify their sources.

Pages 16-17
The Edge Cafe, Colgate University, Hamilton, N.Y.
Einhorn Yaffee Prescott, Architecture & Engineering, Architects
Glass-shade MR16s: Leucos USA, Inc. (Gemlights). Metal-halide wallwashers and fluorescent uplights: Insight Lighting. Cylindrical downlighting: Prescolite. Soffit downlights: Indy Lighting. Dimming system: Lehigh Electric Products Co.

Pages 18-19
The American Queen
Rodney Lay and Associates, Naval Architect
Randy Burkett Lighting Design, Lighting Designer
Recessed downlights: Edison Price Lighting. Low-voltage fixtures: Light Solutions. Crystal luminaires: Schonbeck Worldwide Lighting. Theatrical lighting: Altman. Sconces: Alger Lighting. Exterior accents and floods: Pauluhn Industries. Striplights: Tivoli. Control systems: ETC; Lutron.

Pages 20-23
Dr. Jimmy Fong Optometry, San Francisco
John Lum Architecture, Architect
Illumination Design
Collaborative, Lighting Designer
MR16 downlights: Prescolite. Fluorescent uplights: Wellmade. MR16 accents: Lighting Services, Inc. Pendant: Artemide. Signlighter: B.K. Lighting.

Pages 20-23
Urban Eyes Optometry, San Francisco
John Lum Architecture, Architect
Light Source, Lighting Designer
Fluorescents and exterior sign backlighting: Wellmade. MR16 downlights: Lightolier, Inc. Mirror backlighting: Halo. In-grade uplights: Hydrel. Glass-block illumination: Imperial Bronzelite.

Pages 24-25
St. Mary's Cathedral of the Immaculate Conception, Portland, Ore.
Thomas Hacker and Associates, Architect
Interface Engineering, Lighting Designer:
Downlights: Kurt Versen. Theatrical fixtures: Altman. Exterior facade lighting: Kim Lighting. Sidewalk-level lighting: Gardco. Dimmers and controls: Electronics Diversified, Inc. Custom fixtures: George King Designs and Thomas Hacker and Associates. ■

Con-Tech introduces sirius™, the newest low voltage halogen lighting system. sirius™ offers unparalleled mounting flexibility. Rail sections are available in hand polished chrome, 24 carat gold plate or platinum. A variety of miniature fixtures and accessories are available and may be positioned for task, accent, or uplighting.

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Hydrel

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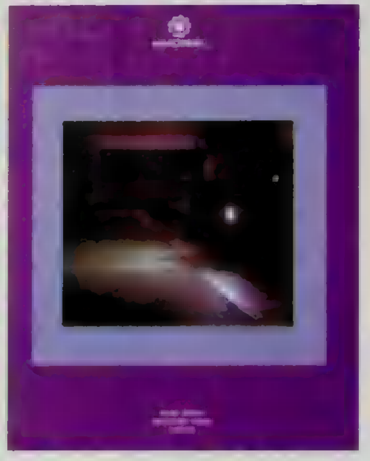

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Hydrel

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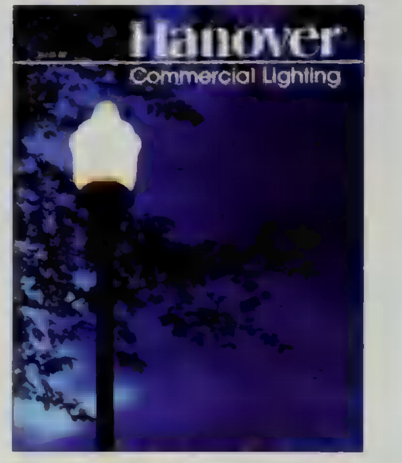

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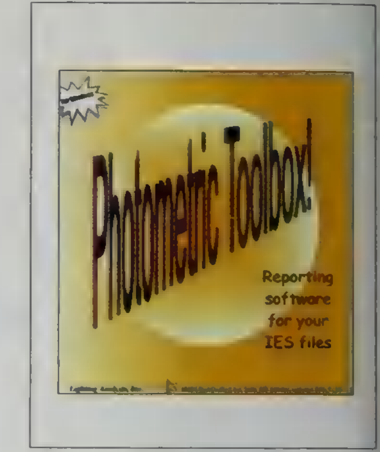

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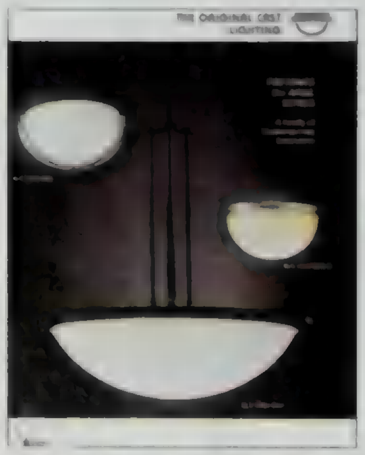

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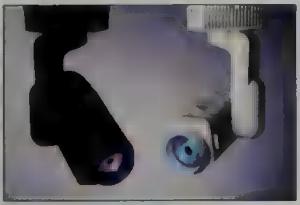

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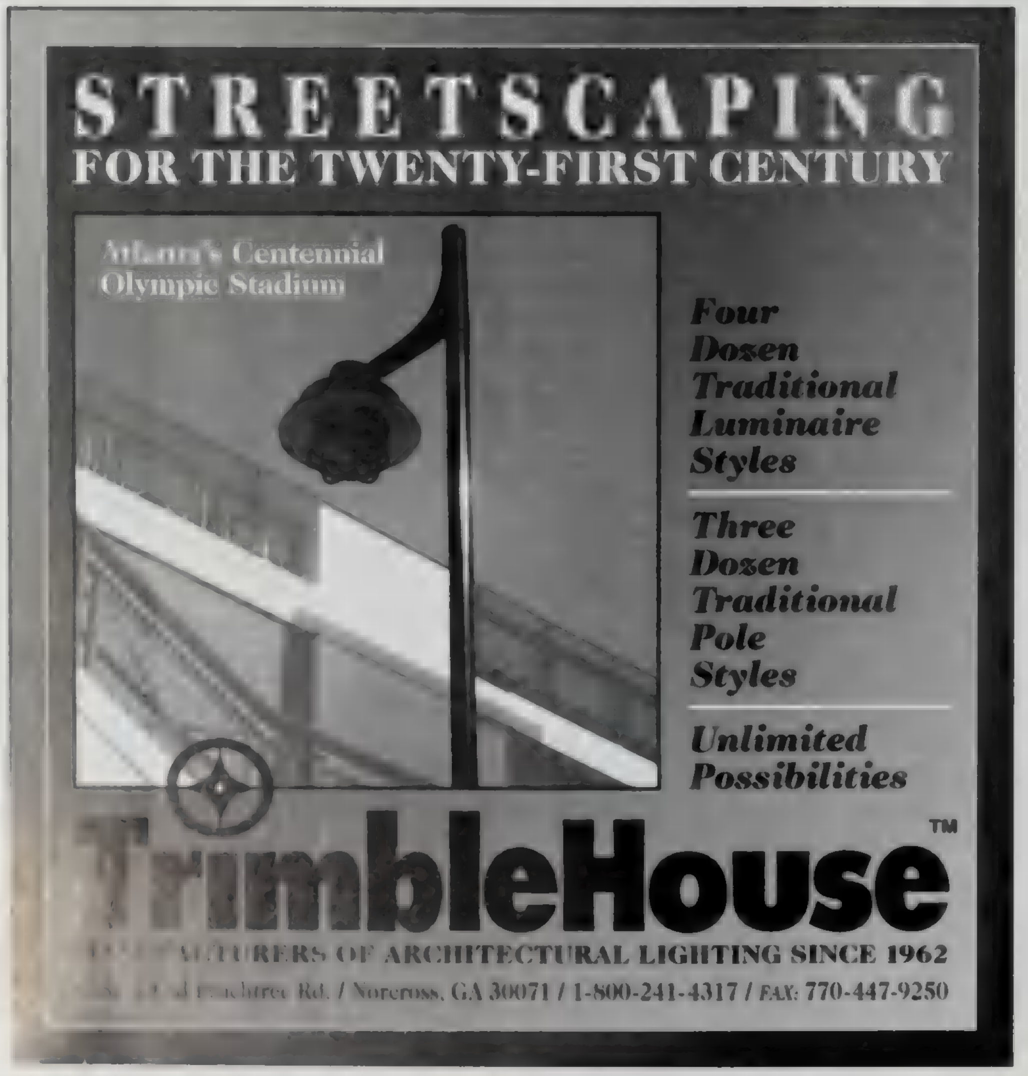

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Venture Lighting has long been known as the innovative leader in metal halide technology.

From formed body arc tubes to open fixture designs, Venture has continued to advance the technology and has paved the way to increase the widespread application of metal halide. In fact, the majority of metal halide lamp types in use worldwide were developed by Venture Lighting. With this type of commanding leadership, its no wonder that the lighting industry looks to Venture for metal halide lighting solutions.

Today, metal halide is poised at the forefront of lighting, and Venture is poised at the forefront of metal halide.

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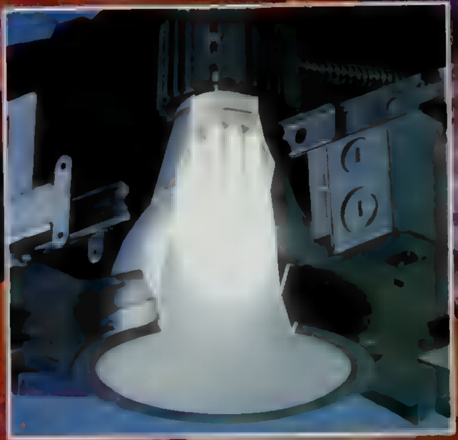

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